UNDERGRADUATE RESEARCH AT UNION

HANDS-ON, FACULTY-MENTORED UNDERGRADUATE RESEARCH IS AT THE HEART OF A UNION EDUCATION.

Working closely with their professors—in classrooms, labs, studios, archives and in the field—Union students delve into topics that inspire and challenge them intellectually and creatively.

For one day each spring, the College suspends classes so that students can share their academic and creative interests and talents in the Steinmetz Symposium: a campus-wide celebration with peers, professors and families. Held annually since 1991, the symposium features an extensive array of oral presentations, posters, performances and exhibits. The day is part of Union’s Recognition Weekend, which includes Prize Day on Saturday, a tribute to student achievement in all fields.

The Steinmetz Symposium celebrates a culture of personal discovery that integrates coursework, faculty mentorship and peer collaboration to deepen students’ understanding of subject and self.

CHARLES PROTEUS STEINMETZ

ELECTRICAL ENGINEER / EDUCATOR / INVENTOR

The Steinmetz Symposium is named for one of the College’s most renowned faculty members, Charles Proteus Steinmetz (1865-1923), who taught electrical engineering and applied physics. Also a chief engineer for General Electric Co., he was widely regarded as America’s leading electrical engineer and, after Thomas Edison, perhaps the most recognized name in the field.

Among his many contributions, Steinmetz fostered the development of alternating current, which made possible the expansion of the nation’s electric power industry.

Born Carl August Steinmetz in Breslau, Germany (now Wroclaw, Poland), Steinmetz studied in Breslau, Zurich and Berlin, pursuing a broad course of scholarship that included astronomy, biology, chemistry, electricity, physics and political economy. He received his Ph.D. in 1888 and was forced to flee Germany after writing a paper critical of the government. He settled in New York City, where he developed the law of hysteresis, which enabled engineers to design better electric motors for use in industry. He joined General Electric Co. in 1892 and relocated to Schenectady.

In 1902, he became professor of electrical engineering at Union. Three years later, he took charge of Union’s new electrical engineering program. After World War I, Steinmetz ceased lecturing at Union, but he remained an active friend of the College the rest of his life. Active in the community, he chaired the city’s school board and parks commission. He also served as president of the Common Council.

A 1914 "Duplex Drive Brougham" Detroit Electric automobile that belonged to Steinmetz is on permanent display in the first-floor corridor between the Wold and Olin buildings. Steinmetz and Thomas Edison are memorialized in statues along Schenectady’s Erie Boulevard.
Welcome from President David R. Harris

The 2022 Steinmetz Symposium continues a 32-year tradition in which we celebrate the achievement of our students in scholarship, research and the arts.

Union College is a community of learning that values collaboration between and among students and faculty. The presentations, exhibits and performances you'll see today are testament to the intellectual and creative curiosity that fuels our students. Today's events also reflect the boundless dedication of our faculty and staff.

Each year, I enjoy meeting with our students to hear about the joy they've discovered in developing and presenting their work at Steinmetz. We hear often from alumni that participating in Steinmetz was a transformational milestone in their Union experience, often helping to chart their course beyond campus.

Please join me in thanking the committee that organized the 2022 Steinmetz Symposium. In particular, I want to acknowledge Heather Watson, associate professor of physics and director of undergraduate research; and Ruth Cotter, assistant to the dean of studies.

Finally, I hope you can join us for Prize Day in Memorial Chapel on Saturday, May 14, at 1:00 p.m., when we will recognize our students for scholarly excellence and leadership.

Race, Power and Privilege

The 2022 Steinmetz Symposium is presenting four sessions on the theme of Race, Power and Privilege: Healthcare and the Pandemic; the Arts; North America Past, Present and Future; and Cultural Politics. See program for details.

“Our Steinmetz Race, Power and Privilege presentations are brave spaces that engage all of us where we are, and help us grow toward further knowledge and understanding. With divergent ideas and personal and cultural approaches, these presentations work to expand understanding and respect for experiences and perspectives. Our commitment to diversity, equity, inclusion and belonging as Union College strives to enhance our vibrant learning and working community both inside and outside the classroom, leading with wisdom, empathy and courage.”

Deidre Hill Butler / Associate Professor of Sociology

The Templeton Institute

A number of presentations in the 2022 Steinmetz Symposium address this year’s theme of the Templeton Institute for Engineering and Computer Science: “Risking Failure to Succeed: Creative Endeavors and Research Experiences of Resilience and Discovery.” With topics ranging from identifying risk factors for depression to using cryptocurrency to help refugees, student presenters will share the risks they took in their endeavors.

The presentations are identified with the Institute’s logo shown here:

The Templeton Institute for Engineering and Computer Science is made possible by a gift from Rich and Mary Templeton of Union’s Class of 1980. The mission of the institute is to enable connections, experimentation, innovation and discovery through integrative coursework, projects and research.

The Templeton Institute Exhibit

The Templeton Institute presents “Failsafe,” an interactive exhibition on Friday, May 13, from 10 a.m. to 5 p.m. in the Imagine Lab, Wold Center 118. Centered on the Institute’s current theme, “Risking Failure to Succeed,” it showcases works made possible only through failure, trial and error and resilience. It celebrates creativity and fearlessness that eventually led to triumph and success. A video component and interactive pieces allow visitors to share stories about risking failure to succeed.

Schedule of Events

Union College
Friday, May 13 Steinmetz Symposium

8:40 a.m. – 5:00 p.m. Presentations on student creative, scholarly and research achievement. Programs and information are available throughout campus. Student presentations begin at 8:40 a.m.

9:00 a.m. – 4:30 p.m. The 2022 Annual Steinmetz Student Visual Arts Exhibition The exhibition is open through May 15 with an artist’s reception May 13, from 4:30–6:00 p.m. The exhibition features 136 works from classes in digital art, drawing, painting, photography, printmaking and sculpture made by 79 students from all class years and majors this academic year.

CROWELL AND WEST GALLERIES, FEIGENBAUM CENTER FOR VISUAL ARTS

4:30 – 6:00 p.m. Artists’ Reception for Steinmetz Student Visual Arts Exhibition

FEIGENBAUM CENTER FOR VISUAL ARTS

5:00 – 6:30 p.m. Steinmetz Symposium Reception
Cash bar and light refreshments for presenters, their families, alumni, guests and faculty sponsors.

HULL PLAZA (BETWEEN SCHAFFER LIBRARY AND NOTT MEMORIAL)

8:00 p.m. Union College Jazz Ensemble

Professor Tim Olsen, director

EMERSON AUDITORIUM, TAYLOR MUSIC CENTER

Saturday, May 14 Prize Day

1:00 p.m. Presentation of Prizes and Recognition

PROCESSIONAL/RECESSIONAL: “Moving through Rhythm (Yanvalou)”

PERFORMERS: The African Dance Club and Zakuro-Daiko, the Japanese Drumming and Global Fusion Band

MEMORIAL CHAPEL

SPRING TERM COVID VISITOR POLICY

• All campus visitors are required to be fully vaccinated against COVID-19 or have a negative COVID test result (PCR or rapid test is acceptable) within 72 hours of arrival. While there will be no formal verification, we respectfully request this requirement is honored to keep our campus community healthy. • Masks are encouraged for indoor settings.
• Visitors are not permitted in the residence halls.
• Frequent hand washing is recommended and encouraged during your visit.
• Please do not visit campus if you feel unwell or have COVID-related symptoms.

The visitor policy is subject to change based on guidance from local, state and federal health officials.
THE 2022 ANNUAL STEINMETZ SYMPOSIUM
STUDENT ART EXHIBITION

9:00 A.M. – 4:30 P.M. / CROWELL AND WEST GALLERIES IN THE FEIGENBAUM CENTER FOR VISUAL ARTS

Artists’ reception, May 13, 4:30 – 6 p.m.
Exhibition runs through May 15

The Visual Arts Department is delighted to present our 2022 Steinmetz Symposium Student Art Exhibition, an annual highlight of student work selected by our studio fine arts faculty. The breadth and diversity of this exhibition showcases the range of courses students are actively engaging in as well as those who push the boundaries between different materials. This selection of work includes students in various class years,
majors and minors in our program, as well as students taking visual art courses as an elective. In 2022 we are so pleased to be back in person in studios and the gallery. We are proud of our students' achievements, and hope that you will enjoy seeing all of their hard work.

LORRAINE MORALES COX / ASSOCIATE PROFESSOR AND DEPARTMENT CHAIR
EXHIBITORS IN
PAINTING
Professor Laini Nemett
Maymunah Ahmed
Gabby Basil
Agustus D’Amore
Kendall Eaton
Saliha Nazir, 2022 Bittleman Prize recipient
Ysabel Thompson

EXHIBITORS IN
SCULPTURE
Professor Chris Duncan
Jolita Brenner
Aram Festekjian
Sofia Hauser
Samantha Kelley
William Lapham
Anh Le
Abigail Michalek
Lucas Piconi
Madeline Schaeffer
Jordan Whittier
SESSION I

8:40 – 10:40 A.M. / CONCURRENT ORAL PRESENTATIONS

RACE, POWER AND PRIVILEGE 1: HEALTHCARE AND THE PANDEMIC
MODERATOR: CONOR O’DEA

8:40 / ADENIKE HICKSON
The Impact of COVID-19 Blame on Asian Americans’ Sense of Belonging

9:00 / BRIANNE FORMAN
Did COVID-19 and the Black Lives Matter Movement Cause an Increase in Homicides?

9:20 / DANA D’ONOFRIO
Pandemic Unemployment Assistance as an Asymmetric Incentive Among Gender-Racial Demographics

9:40 / DHARA SHUKLA
The Patient Narrative and the Impositions of Implicit Biases in Health Care

10:00 / AINSLEY BARLOW
Health Disparities in the Hispanic Population Due to the Lack of Translational Services in Health Care Settings: Call to Action

NEUROSCIENCE
MODERATOR: CHAD ROGERS

8:40 / KARTIK NATH
The Interactive Physical and Cognitive Exercise System (iPACES v3): Neuro-exergaming for Parkinson’s Disease

9:00 / MAC KENZIE FRANK
Improving an SSVEP-Based BCI Speller for Pediatric Use

9:20 / ISABELA ALBUJA
Exploring Bilingualism as a Protective Factor for Cognitive Decline

9:40 / ALLY ATKINS
Determining Optimal Stimulation Frequency for Brain Computer Interface (BCI) Based Color Vision Assessment

denotes

10:00 / HANNAH SOLIMAN
Dad and BOMB or Atomic MOM? Assessing the Role of Outgroup Bias on Audiovisual Speech Perception

10:20 / KAROLYN BEDORE
An Exploration of Equine-Assisted Activities/Learning

GOVERNING, HEALTH AND ECONOMIC OUTCOMES OF THE COVID-19 PANDEMIC
MODERATOR: ZOE OXLEY

8:40 / HANNAH HOYT
Governing During COVID-19: Did Male and Female Governors Respond Differently?

9:00 / WILLIAM CARPENTER
COVID-19 and the Corporate Bond Trading by the Hartford Insurance Group

9:20 / EMMA GRAY
Migraine and Anxiety in the Context of the COVID-19 Pandemic

9:40 / MARGARET HAYES
Changes in Work Hours During the COVID-19 Pandemic
RENEWABLE ENERGY AND SUSTAINABILITY

SESSION I

8:40 – 10:40 A.M. / CONCURRENT ORAL PRESENTATIONS

The Impact of Plant Size on Productivity in the U.S. During the First Half of the Twentieth Century

9:20 / ANDREW WOOLSTON

9:40 / ELIJAH SIEGEL
Evaluating Recommendations in the Electric Vehicle Industry

10:00 / ANNA KENNEDY
From Rags to Riches: The History of Sustainability and Regenerated Carded Wool in Prato, Italy

Bottle Recycling on a College Campus: An Application to Union College

FIRE AND ICE—GEOSCIENCES FROM VOLCANOES TO ANTARCTICA
MODERATOR: HOLLI FREY

8:40 / IAN PLUMMER
Peruvian Speleothem Record of Climate and Hydrologic Variability during MIS 6

9:00 / GRACE O’HARA
The Hydroclimate in South America During the Penultimate Glacial Period Determined by Stable Isotope Analysis of a Peruvian Stalagmite

9:20 / ALEXANDER DIEDRICH
Using Peruvian Speleothems to Depict Natural Climate Variation

9:40 / EMMA PUHALSKI
Holocene Paleoclimate of McMurdo Sound, Antarctica Reconstructed from Growth Striations and d13C, d18O, and d15N Values in Shells of the Antarctic Scallop Adamussium colbecki

10:00 / SYDNEY WALTERS
Characterization of the Initial Explosive Phases of the 2021 La Soufriere Eruption, St. Vincent

10:20 / DANIEL DICKSON
An Investigation of the Igneous-Plutonic Setting of Poway, Calif.
SESSION I

8:40 – 10:40 A.M. / CONCURRENT ORAL PRESENTATIONS

CHEMISTRY

MODERATOR: COLLEEN CONNOLLY

8:40 / CAMILLE PARKER
Diisopinocampheylborane Trifluoromethanesulfonate Mediated Aldol Reactions Using an Aldehyde and an Amide

9:00 / EMMA DEVANEY
Small Molecules Ligands for G-quadruplex Stabilization in Pre-miRNA

SESSION I

8:40 – 10:40 A.M. / CONCURRENT ORAL PRESENTATIONS

Development of Quantitative Methods to Study PFAS Using Proton Induced Gamma-Ray Emission

denotes

EVO-DEVO 1 (EVOLUTIONARY DEVELOPMENTAL BIOLOGY)

MODERATOR: SCOTT KIRKTON

8:40 / GRACE HEITING
Hypoxia Decreases Jump Rate and Increases Lactate Production in Late-Stage Grasshoppers

9:00 / ANDREW SHEAHAN
Decreasing Tracheal System Volume During Intermolt Development in Grasshoppers.

9:20 / CAITLIN WILLIAMS
Utilizing Captive-Bred Bearded Dragons to Study Sensory and Cognitive Capacity in Lizards

9:40 / TIMOTHY FAGAN
The Influence of Body Temperature on Motion Patterns in Anolis Lizard Visual Display

MEASUREMENTS AND MODELING IN THE PHYSICAL SCIENCES

MODERATOR: JON MARR

8:40 / JOSHUA DAROSA
Flow measurements over Heterogeneous Canopies Resembling River Vegetation

9:00 / RYAN GALLARY
Volumetric Time-Resolved Flow Measurements of Rough-Wall Turbulent Boundary Layers with Flow Injection

10:00 / ZHEBIN YIN
Impact of Movements on Facial Expression Recognition

9:20 / ADAM GINSBERG
Using Mathematical Functions to Express Harmonic Progression

9:40 / CHRISTOS KAKOGIANNIS
Statistical Effects of Synthetic Template Mismatch with Model DEIMOS Observations

10:20 / COLIN LANGTON
Human Facial Emotion Recognition on a Real-Time Platform

ELECTRICAL, COMPUTER AND BIOMEDICAL ENGINEERING

MODERATOR: LUKE DOSIEK

8:40 / VICTORIA MULLEN, MADELYN CAGNASSOLA
Moist Heated Massage Gun

9:00 / SEAN MILLER
Motion Controlled Robotic Hand to Mimic Human Gestures

9:20 / LILAH KELLY, EDWIN GARCIA-FLORES
Automated Watering and Heating System for the Schenectady ARC Using RF Modules

9:40 / YUEYIN SU
Human Facial Emotion Recognition on a Real-Time Platform
SESSION II

10:50 – 12:30 P.M. / CONCURRENT ORAL PRESENTATIONS

RACE, POWER AND PRIVILEGE 2: THE ARTS
MODERATOR: DEIDRE HILL BUTLER

10:50 / ELENA MONTOYA
Black and Chicana Feminist Art Perspectives: Fostering Change through Art and Community Building

11:10 / ERICK MIRON
Latinx Portrayal on the American Stage

11:30 / MARY MELO
Music and Social Movements: Role of Rap and Hip-Hop on the Black Lives Matter Movement

11:50 / ROCHELLE-LEAH NUQUI
"Ang kuwento ng araw at buwan”—The Story of the Sun and Moon and What it Means to Be Filipino-American

12:10 / OWEN FOLEY
Possession vs. Progression: The Relationship Between Hip-Hop and Copyright Law

PERFORMING ARTS
MODERATOR: DAN VENNING

10:50 / INGRID BURKE
The Spectacular History of Aerial Silks

11:20 / MIA VILLENEUVE
Absurdism as Social Commentary in “Rhinoceros” and Other Plays

11:40 / UNGLID PAUL
La Fille de la Révolution

ENGLISH 1—LITERARY WORLDS OF CREATIVE IMAGINATION
MODERATOR: CLAIRE BRACKEN

10:50 / KALEIGH CONTE
Fantastic Lies

11:10 / FRANK CACCIOPPOLI
Strangers on Earth: A Creative Short Fiction Collection

11:30 / MADELINE SCHAEFFER
What I Knew Then, and What I Know Now

ECONOMICS, POLICIES AND ATTITUDES IN NON-U.S. COUNTRIES
MODERATOR: TOMAS DVORAK

10:50 / ANNA TRANCOZO
Another World is Possible: Democratic Innovations in Latin America

11:10 / WILLIAM MARTIN
U.S. Monetary Policy as a Hegemonic Tool in Emerging Markets
SESSION II

10:50 – 12:30 P.M. / CONCURRENT ORAL PRESENTATIONS

11:30 / WILLIAM PIERONI
On Non-Life Insurance and Economic Activity in Developing Countries: An Analysis of Select LAC Countries

11:50 / CAROLINA MISSURA SALEM
Patience as a Determinant of Environmental Attitudes in Europe

denotes

EFFECTS OF CORTISOL ON OBESITY AND DEPRESSION
MODERATOR: BRIAN COHEN
11:10 / RYAN SIDORSKI
The Effect of Single Nucleotide Polymorphisms Related to Cortisol Activity in Obesity

11:30 / CASSIDY MICHALICKA
The Effect of Cortisol Hypersensitivity Polymorphisms on Cortisol Activity in Obesity

11:50 / MICHELA MICHIELLI
Cortisol Receptor Sensitivity as a Risk Factor for Depression

12:10 / LINDSEY NASSIMOS
Relationship Between Cortisol Responsiveness and Depression

STUDENT CONFERENCE ON U.S. FOREIGN POLICY AT WEST POINT PROCEEDINGS
(one hour-session)
MODERATOR: TOM LOBE
10:50 / MELANIE BOYLE, SOPHIA ANDERSON, DANIEL GREENMAN
Disruptive Technology and American Influence in the Coming Decade

ENVIRONMENTAL CONTAMINATION AND WATER QUALITY IN UPSTATE N.Y.
MODERATOR: ANOUK VERHEYDEN-GILLIKIN
10:50 / JOANNA WRIGHT
Sewage Contamination and Pathogens in Urban Streams in Schenectady and Impact on the Mohawk River

11:10 / MICHAEL CONNOLLY
Implications of Antimicrobial Drug and Bacteriophage Resistance in Environmental Isolates of E. Coli Bacteria

11:30 / NOAH REIDY
Use of Cathodoluminescence on Blueback Herring Otoliths to Better Understand Population Dynamics in the Mohawk River

11:50 / CAMRYN RAGLAND
Failing Infrastructure and Stressors on Water Quality in Streams within the Alplaus Watershed in Upstate N.Y.

CANCER—COVID—HIV: QUANTITATIVE STUDIES OF SERIOUS DISEASE
MODERATOR: JUE WANG
10:50 / XINCHEN HUANG
Survival Analysis on Patients with Hepatocellular Carcinoma by Different Demographic and Tumor Characteristics

11:10 / ZHEBIN YIN
Diagnosing and Categorizing Lung Cancer Using Deep Learning

11:30 / ZEKAI HU
Building Computational Models to Predict Survival Rate of Heart Failure Patients with COVID-19

11:50 / SOPHIE DANZIGER
Synthesis of a Fatty Acid Synthase Inhibitor Enzyme to Aid In the Treatment of Cancer

12:10 / GARYFALLIA RALLI
Blocking the Entry of HIV into Host Cells Through
SESSION II

10:50 – 12:30 P.M. / CONCURRENT ORAL PRESENTATIONS

EVO-DEVO 2 (EVOLUTIONARY DEVELOPMENTAL BIOLOGY)
MODERATOR: ROMAN YUKILEVICH

10:50 / TESS GALLAGHER
Skin Deep with Diplodocus: Small Polygonal Scales from Diplodocus Sp. Were Porous, and May Have Played a Role in Thermoregulation Via Water Absorption and Evaporative Cooling

11:10 / MARCY FORTI
Differentiation of Smooth Muscle in the Developing Spiral Intestine of L. Erinacea

11:30 / WU LAUNH
Investigating Embryonic Flexure and Torsion Using Finite Element Analysis (FEA)

11:50 / GABRIELA BASIL
Widespread Evidence of Reinforcement in Male Courtship Discrimination Driven by Pheromones in Drosophila

APPLICATIONS OF SILICA SOL-GEL MATERIALS
MODERATOR: MARY CARROLL ’86

10:50 / MARGEAUX CAPRON
Fabrication and Characterization of TEOS-based Silica Aerogels for Window Applications

11:10 / STEFAN BRECHER, LUKAS BAKER
AeroCel Solar Thermal Collector

11:30 / ISAAC NEUSTADT
Using Aerogel-Based Insulation to Reduce Liquid Hydrogen Boil-Off

11:50 / JACOB BOWSER
Development of Silica-Xerogel-based Optical Humidity Sensors

12:10 / ANNELISE LOBO
Hydrophobic Aerogel Films
SESSION III
12:30 P.M. – 1:50 P.M. / POSTER SESSIONS

NATURAL SCIENCES
AND ENGINEERING 1

NANDINI AGRAWAL
Chaotic Oscillator for Dual Functional Radar Communication Operation

CALEB BASHANT
Laser Reduced Graphene Oxide for Sensor Applications

EVA BLASHKEVICH
The Research and Development of Clean and Efficient Biomass Cookstoves

BETHANY COSTELLO
An Investigation of Impacts of Shading on PV Module Temperature and Performance

AKRITI DHASMANA
Mapping Power: Hierarchical Social Network Analysis of Short Fictional Text

MARIAM DOBOSZ
Heat Recovery from Photovoltaic Modules Enhanced with Sustainable Phase Change Materials

QUINLAN GODDARD
Latent Heat Storage System for Domestic Hot Water Heating Using Phase Change Materials

HYOJIN HAN
Exploring the Morphologies and Behaviors of Soft Silicone Robots

MILES ACKERMAN
Re-building an Optical Tweezers Setup Incorporating an AOM

AQEEL AHMED
Single Photon Experiments using Type-I and Type-II Spontaneous Parametric Downconversion

NATURAL SCIENCES
AND ENGINEERING 2

JOHN MASCI, KIARA BECKHAM, WILLIAM DUPREY, SARAH WORT
Weight Measurement System for Emergency Pediatric Transports

JULIA NICOLESCU, AUDREY GOON, RAYA PETROVA, FIONA ZIMMERMAN
HeartFinder: An Innovative Ultrasound Fixation Device for Intermittent Cardiac Assessment

MARIAM DOBOSZ
Permeability and Stability Analysis on Graphene Oxide (GO) and Aluminum Graphene Oxide (AGO) Membranes

DIEP VU
Gender Bias in Artificial Intelligence: Exploring the Impacts of Stereotypes on English-Vietnamese Machine Translation

HARPER LYON
Examining the Wording of Digital Synthesizer Presets to Help Novice Music Producers

LINDSEY PODLASKI
Enhancing Bifacial PV Efficiency with the Addition of a Rear Side Reflector

REBECCA LAVENTURE, BAILEY DECOCCO
Medical Imaging Applications of Chaotic Waveforms
SESSION III

12:30 P.M. – 1:50 P.M. / POSTER SESSIONS

DEVIN BATHEJA
Synthesizing Potential Metacaspase Inhibitors

MANAV BILAKHIA
Searching for Hybrid Mesons \( \pi^1(1600) \) in \( \gamma p \eta'^I \eta' p \)
With GlueX Data

MELANIE BOYLE
The Freezing and Melting Points of Solute Compositions as they Relate to Europa

JAMES BROUDER
Visualizing Soft Bodied Robotics Simulations with Modern Rendering Techniques

AVERY CLAVEL, HAILEY STOLTENBERG
Tropical Paleoclimate Reconstruction of Heinrich Event 4 and Monsoon Cycles Using Peruvian Speleothem Isotope Records

JASON D’AMICO
A Medial Axis-based Compactness Measure vs. the Eye Test for Detecting Gerrymandering

JANA DAVIS
Determining the Visual Acuity Threshold of Crayfish (Faxonius virilis and Orconectes rusticus)

KATHRYN EFNER
Studying Food Web Relationships Using Carbon and Nitrogen Stable Isotopes

STEPHANY HEIBERGER
CRISPR/Cas9 Gene Knockout Experiment Targeting the Tea1 Gene in the Mushroom-Producing Fungus Pleurotus Ostreatus

BROMBERG, JAYSON, ZUHAIR ALMASSRI, MINH MGUIEN, LOUIS BEAUCHAINE
Lightcurve for the Main Belt Asteroid (1363) Herberta

CElia LANE
A Tiny House for Big Change: Bridging Communities to Promote Wellness Together

ELISE LIEBOW
Electron-Positron Annihilation Lifetime Spectroscopy of MgO

TALIA MARC
Examining a Conserved Function for GDE6-Related Proteins in Neural Development

MEGHAN MCVAIGH
Disruption of the Transcriptional Regulator Ust1 in Pleurotus ostreatus utilizing CRISPR/Cas 9 Genomic Editing

PHOENIX MULGREW
Corrective Feedback Timing in Kanji Writing Instruction Apps

GRACE NICOL
The Identification of hFSHR Interacting Proteins

ELIAS OTTENS
External Beam Alignment System for Quantitative Proton Induced Gamma-ray Emissions (PIGE) Spectroscopy

ARIS RASSIAS, ANDY CAHALY, AXTON PULLIAM
Baja SAE Racing Team Display (Wold Lower Level)

Samantha Rosenfeld
Investigating the Thermodynamics and Seismic Profile of the European Hydrosphere through Pure-Water Modeling and Saltwater Experiments

KATHERINE SONNTAG
Determining PFAS Contamination from Firefighting Foam Using PIGE and PIXE

LEA STEINBERG, TIMOTHY FAGAN
Analyzing the Distinct Motion Patterns of Anolis Visual Displays as a Function of Honest Signaling

BRIANNA TURNER-DOUGLAS
Sonic Hedgehog’s Role in the Developing Skate Spiral Intestine

MIA VILLENEUVE
PIXE Analysis of Heavy Metal in Soil Along the East River

SCARLETT JIA WEI
Searching for Hybrid Mesons \( \Pi^1(1600) \) in \( \gamma p \eta'^I \eta' p \)
With GlueX Data

MAGGIE WEICHERT
Genetic and Evolutionary Changes in the SARS-CoV-2 Spike Protein
SESSION III
12:30 P.M. – 1:50 P.M. / POSTER SESSIONS

MINERVA FELLOWS PRESENTATIONS

YAN BO
Minerva Exploration Grant: Spanish Theater and Music

PAOLA GARCIA
Learning How to Play Guitar for Mental Wellness

CYNTHIA PAZ
Equity for Women in Academia and Careers

ANNA TRANCOZO
Minerva Exploration Grant: Brazilian Portuguese

VERONICA TUREK
Knitting and Sewing: A Generational Tradition

HUMANITIES, SOCIAL SCIENCES AND PSYCHOLOGY

SERINA BEEBE
Analysis of the Efficiencies and Sustainability of ICCAT Policies on Atlantic Bluefin Tuna Stocks

SAMUEL BYRNE
Do Industries with High Workplace Flexibility See Lower Job Losses Due to COVID-19 Than Ones with Less Flexibility During the ‘Great Resignation?’

ALEXIS CANDIDO
Medea: How Translation Affects Understanding in Euripides’ Medea

DANIEL DEBONIS
Consequences of Repeated Critical Versus Neutral Body Checking in Men with High Shape or Weight Concern

LEONARDO FERRISI
AVIAN: A Versatile Interface for Applications in Neurofeedback—Using Open-Source Technologies for Low-cost Alternatives to Neurofeedback

TESSA FOUNTAIN
Orpheus and Eurydice: Why Ancient Myths are Reinterpreted for the Stage

KELCI GILOT
Exploring Allocation Schemes for Distributing Global Climate Mitigation and Adaptation Funds

NATALIE GIORDANO
The Latin American Psyche: How Political Instability Affects Mental and Emotional Health in Bolivia

GENESIS GONZALEZ VILLATORO
The Science Behind Cosmetics: A Deeper Look into the Chemistry of Makeup in Theatre

ARUNDHATI GORE
Exploring Sources of Heavy Metals in a 19th-Century Privy in the Oliver Residence in Albany, NY

AARON ISENSTIN
Examining How the Changes in Monetary Variables Have Affected Asset Prices

HALLIE KATZMAN
Masculine Honor Beliefs and Perceptions of Intimate Partner Violence to Reestablish a Perceived Loss of Masculinity

GRACE LEVINS
Women, Water and Climate Change: How the Changing Climate is Affecting Women and Water Sources in Four Case Studies

ZIHE LI
Analysis of Impact of Sino-U.S. Trade Frictions: Case Study of Huawei

JAKE MILLER
The Angels of Warsaw: The Warsaw Ghetto Story

MADISON NATHAN
Quality of Mental Health Management and Resources for Adolescents in High School

SALIHA NAZIR, SADIE HILL
Lead White and Red Lead in 15th and 16th Century Europe
SESSION III

12:30 P.M. – 1:50 P.M. / POSTER SESSIONS

MOLLY RUSGROVE
Real Men of Genius: The Effects of Masculine Honor Beliefs and Mortality Salience on Risky Behaviors

RYAN SIDORSKI
The Effect of Due Diligence Reports on Robinhood Stock Ownership During 2019?

REBECCA TEGIACCHI
Music to Your Ears- Effects of Musical Experience on Prosody in Sentence Production

MIYA WALTO
COVID-19 and Social Isolation: Predicting Psychological Distress in High vs. Low Self-Monitors
SESSION IV

1:50 P.M. - 3:30 P.M. / CONCURRENT ORAL PRESENTATIONS

RACE, POWER AND PRIVILEGE 3:
NORTH AMERICA PAST, PRESENT AND FUTURE
MODERATOR: ARSALAN KHAN

1:50 / ALYSSA HARRYNANAN
Diversity in the Adirondacks: Past, Present, and Future

2:10 / LYDIA HOGAN
Canyon in Context: Power Dynamics and Erasure in the Construction of Native American Narratives at Grand Canyon National Park

2:30 / ALYSSA HARRYNANAN
A Comparative Analysis of FEMA Housing Recovery Efforts after Hurricane Katrina and Ida

2:50 / ROGER YACINTEH
Your Roots: An Examination of Community Within La Regla de Ocha in New York City and American Society

SEX AND POWER 2
MODERATOR: JENNIFER MITCHELL

1:50 / GRACE ATHANAS
Clinical Implications of Body Exclusivity in Childhood and Adolescence

2:10 / SIQI JIA
Does Patriarchal Culture Shape Women’s Preferences?

2:30 / LYDIA MCELROY, CAROLINE KISER, OWEN WHITE
Implementing More GSW Courses at Union College

2:50 / ELAINE FRYER, GRACE ATHANAS, AVA BOWEN
College Level Sex Ed: SEX-101-01: U & Me, Understanding Our Bodies
SESSION IV

1:50 P.M. - 3:30 P.M. / CONCURRENT ORAL PRESENTATIONS

**ART FOR HEALING**

MODERATOR: TIMOTHY STABLEIN

1:50 / EMMA CALARCO
Identity Through Art: Art Therapy Program Proposal to Address Internalized Homophobia in Queer Youth

2:10 / CRYSTAL FLAX
Poetry as Healing: Shedding Light on Overshadowed Female Poets in France

2:30 / MICHELLE MOINA
A Growing Familiarity with Death Through Art

2:50 / SARAH BRESETT
Obenzinger Project: After-School Program for At-Risk Youth of Albany

**ENGLISH 2: INTERDISCIPLINARY WORLDS AND THE MATTER(S) OF WRITING AND REPRESENTATION**

MODERATOR: CLAIRE BRACKEN

3:40 / AKRITI DHASMANA
Mapping Power: Hierarchical Social Network Analysis of Short Fictional Text

4:00 / COZETTE BLUMENFELD
Women Are More Likely to Use Tentative Language, I Think: A Literary and Statistical Analysis of Ulysses by James Joyce and Debate Speech

4:20 / MICHAELA WOOD
"Meatheads" Redefined: An Analysis of the Union College Football Team

**FINANCE 1**

MODERATOR: TOMAS DVORAK

1:50 / GRACE SNYDER
The Effect of Board of Director Characteristics and Shareholder Activism on ESG Ratings.

2:10 / RAGHAV NARRAVULA
An Analysis of Price Variability Between Albany Medical Center and New York Presbyterian Hospital

2:30 / JOSEPH FERREIRA
The Effect of Preferential Trade Agreements with Intellectual Property Right Provisions on Multinational Production

2:50 / MICHAEL RYAN
The Economics of Leveraged Buyouts

**INEQUALITY IN AMERICA—HEALTH, WEALTH AND FOOD**

MODERATOR: CIGDEM CIDAM

1:50 / ISABELLE RIKER
Income Inequality in Tourism-Dependent Counties in the United States

2:10 / SOPHIA ANDERSON
The Flawed Thinking of Pulling One Up by Their Bootstraps: Food Insecurity in America

2:30 / PATRICK MORRISON
The Effects of Recreational Marijuana Dispensaries on Local Opioid Mortality

2:50 / DERECK WANG
Mental Health is Wealth Too: Did the Affordable Care Act Medicaid Expansion Improve Mental Health Outcomes?

3:10 / ANNA LEHR
Patterns In Adoption of State Food Waste Policies in The United States

**PERSPECTIVES ON EAST ASIA**

MODERATOR: ESHRAGH MOTAHAR

1:50 / SEBASTIAN KANIA
Patronage, Power and Ideology: Political Actors and Buddhism and Confucianism in China from the Tang to the Ming

2:10 / DANIEL WILCOX
SESSION IV

1:50 P.M. - 3:30 P.M. / CONCURRENT ORAL PRESENTATIONS

ENVIRONMENTAL CHEMISTRY
MODERATOR: LAURA MACMANUS-SPENCER
1:50 / AMBER BIRT
Measuring Concentrations of Acrylamide in Brewed Coffee

2:10 / SABRINA RUFRANO
Investigating Interactions of Per- and Polyfluoroalkyl Acids with Human Serum Albumin Using an Equilibrium Dialysis Method

2:30 / MICHAEL CONTE
Investigating the Mitigation of Lead Contamination and Its Consequences in Roman Pipes Using Experimental Models

2:50 / MADISON DIMAURO, WILLIAM DUPREY
Cytotoxic Effects of Octyldimethyl Para-Aminobenzoic Acid (OD-PABA) and its Photoproducts

3:20 / LUKAS BAKER
Experimental and Theoretical Study of Large Amplitude Motions in Methoxypyridine, Methoxyfuran and Methoxypyridine
AEROGELS FOR AUTOMOTIVE POLLUTION MITIGATION

MODERATOR: ANN ANDERSON

1:50 / PATRICK BARRY
Mixed-Metal Aerogels for Catalytic Converter Applications: A Closer Look

2:10 / ETHAN LAMPERT
Union Catalytic Aerogel Testbed (UCAT) Particulate and Moisture Filtering System

2:30 / TARAN EVANS-MORAN
Rebuilding and Refining a Testbed for Aerogel-based Diesel Particulate Filters

2:50 / ANDREW CAHALY
Simulating Flow Through Aerogel Materials for Catalytic Converter Applications

SESSION V

3:40 P.M. - 5:20 P.M. / CONCURRENT ORAL PRESENTATIONS

RACE, POWER AND PRIVILEGE 4: CULTURAL POLITICS
MODERATOR: ELENA MCGRATH

3:40 / MAIA MARTINEZ
21st Century Rise of Neofascism in the United States: How the Alt-Right Emerged and Why it Continues to Grow

4:00 / LAURA BETH MULLIGAN
The Normalization of Detention Centers in the United States

4:20 / RHYS MOGER
The Relationship Between Antisemitism and Belief in Conspiracy Theories

4:40 / FLETCHER FINEMAN
Who’s Confronting: An Examination of Motivations to Confront Prejudice and Their Effects on Personal and Collective Esteem

FINANCE 2
MODERATOR: LEWIS DAVIS

3:40 / JOSEPH LIBRETTI
Do Presidential Approval Ratings Affect the Price of Bitcoin

4:00 / MATTHEW CERMINARO
The Effects of Sentiment on Stock Market Returns: Can Contrarian Investors Use Stock Market Sentiment to Profit From Short-Term Market Dislocations?

4:20 / CONNOR FITZGERALD
The Evolution of the Fiat System: Debasing Currency Through Inflation
SESSION V

3:40 P.M. - 5:20 P.M. / CONCURRENT ORAL PRESENTATIONS

POLITICAL SCIENCE
MODERATOR: BRADLEY HAYS
3:40 / NATHANIEL HUTTON
Schenectady During the Depression: An Analysis Through Primary Sources
4:00 / PAXTON OUELLETTE
Importance of Newspapers in Establishing Early 19th Century American Political Parties
4:20 / KAITLYN PIECHNIK
Elite Audiences of the Court: The American Bar Association’s Influence on Supreme Court Decision-Making
4:40 / JONATHAN CAREW
Appraising the Deliberative Assembly: The Prospects for Parliamentary Democracy in the Thought of Weber, Schmitt and Lukács
5:00 / NATHANIEL HUTTON
Examining Contemporaneous Suburban Realignment

BIOCHEMISTRY
MODERATOR: KRISTIN FOX
3:40 / KATHERINE SADAK
Expression of Type IIa Metacaspases from the Fungus Schizophyllum Commune
4:00 / TIMOTHY COYLE
Model for Calcium-Dependent Activation of a Type I Metacaspase from the Fungus Schizophyllum commune
4:20 / LUKE MIRANDA
Mutation of Schizophyllum Commune Metacaspase for Cleavage Site Identification
4:40 / MORGAN TRUESDELL
Optimization of Metacaspase Protein Purification denotes

SOCIAL AND EMOTIONAL DEVELOPMENT OF EMERGING ADULTS 2
MODERATOR: LINDA STANHOPE
3:40 / CAROLINE TROOP
Social Media Use and Mental Health in College Students During the COVID-19 Pandemic
4:00 / HANA YOUNG
Mental Health Treatment and First-Year Adjustment to College
4:20 / ALEXIS CANDIDO
Social Media as a Mechanism for Violence: Cyberbullying and Cyber Dating Abuse Among Adolescents
4:40 / EMMA HOUSTON
The Moderating Effect of Emotion Regulation on Body Image, Sexual Self Schemas and Sexual Health Outcomes in Emerging Adult Women
5:00 / ETHAN FOSTER
Understanding the U.S. News & World Report College Rankings

PSYCHOLOGY
MODERATOR: JOSHUA HART
3:40 / AUDREY PALMERI
Does Adult Attachment Predict Economic Risk-Taking?
4:00 / AMBER RAISNER
The Effects of Doubt and Checking on Memory Confidence and Accuracy
4:20 / KATHERINE ARNOLD
A Middle Way in Psychology
4:40 / KIRA KASCHA
Context-Dependent Memory Effects for Those With ADHD
ECOLOGY AND ORGANISMAL BIOLOGY
MODERATOR: KATHLEEN LOGUIDICE
3:40 / JULIA CHAREST
Can Drought Frequency be Tracked by Stable Carbon Isotopes in Sphagnum Soluble Sugars?

4:00 / SASHA MILSKY
Assessing the Viability of Stable Isotope Analysis as a Method for Identification of Prior Ixodes Scapularis Hosts

4:20 / KHOA TRAN
How does the Abundance of Invasive Amur honeysuckle (Lonicera maackii) Increase Tick Density?

4:40 / SARAH WETTERGREEN
Feasibility of Stable Isotope Analysis as a Method for Prior Ixodes scapularis Host Identification
UNION COLLEGE

STEINMETZ DANCE

PERFORMANCE

FRIDAY, MAY 13 / 4 P.M. /
VINIAR ATHLETIC CENTER

The 2022 Lothridge Festival of Dance

FACULTY SPONSOR / DIRECTOR OF DANCE: MIRYAM MOUTILLET

FACULTY CHOREOGRAPHY

CONVERSATION
CHOREOGRAPHED BY LAURIE ZABELE CAWLEY
MUSIC BY J.S. BACH
Dancers: Rachel Bryan, Maia Carty, Eva Crowley, Sarah Dames, Alexandra Nicolaus and Haylee Snow

FRAGMENTS
CHOREOGRAPHED BY MIRYAM MOUTILLET
MUSIC BY JULIA KENT
Dancers: Maia Carty and Alexandra Nicolaus

SUSPENDED CONTACT
CHOREOGRAPHED BY LAURIE ZABELE CAWLEY
MUSIC BY DAN LEVY
Dancers: Quoc (Jordan) An, Emily Armlin, Rachel Bryan, Adrianna Lawton, Armanda Noel and Sage Stinson

THE PATH
CHOREOGRAPHED BY MIRYAM MOUTILLET
MUSIC BY DUSTIN O’HALLORAN
Dancer: Armanda Noel

STUDENT CHOREOGRAPHY

BLOOM
CHOREOGRAPHED AND PERFORMED
Director of Dance, and a senior artist in residence, retires this June after more than two decades at Union. Moutillet created the minor in dance in 2005 and established a robust dance program that attracts students from all majors to the Henle Dance Pavilion. She will be celebrated with a reception in the Arts Courtyard on June 3 at 4 p.m.

STEINMETZ CONCERT 2022

FRIDAY, MAY 13 / 8 P.M. / EMERSON AUDITORIUM IN THE TAYLOR MUSIC CENTER
Union College Jazz Ensemble
DIRECTOR: PROFESSOR TIM OLSEN

ALTO SAX
Grace Canepari '25
Ethan Lampert '22

TENOR SAX
Peter D'Agata '25

TRUMPET
Ian Petrat '25
Tyler Weissinger '25

TROMBONE
Art Duncan
Tim Welch '23

GUITAR
Aarón Carretero Benites '25
Cole Maher '23
Dan Singer '25

PIANO
Zach Pine Maher '22
PROGRAM

STOLEN MOMENTS
OLIVER NELSON

ZACH’S BLUES
ZACH PINE MAHER

OYE COMO VA
TITO PUENTE

BASIN STREET BLUES
SPENCER WILLIAMS

ARMANDO’S RHUMBA
CHICK COREA

A MILLION DREAMS
BENJ PASEK AND JUSTIN PAUL

9 TO 5
DOLLY PARTON

SHOFUKAN
MICHAEL LEAGUE
OUR LAND ACKNOWLEDGEMENT

We acknowledge that we live, work and study at Union College on the traditional homelands that were originally peopled by the Iroquois Confederacy, including the Cayuga, Mohawk, Oneida, Onondaga, Seneca, Haudenosaunee (the People of the Longhouse) and other tribes. What we call Schenectady is a Dutch version of a Mohawk word skahnéhtati, meaning “The Place Beyond the Pines.” As a College, we honor the land itself with gratitude and acknowledge the people who have stewarded the land throughout the ages.