



2019 STEINMETZ SYMPOSIUM

FRIDAY, MAY 10

C H A R L E S
P R O T E U S

UNION
COLLEGE
FOUNDED 1795

STEINMETZ

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.

C H A R L E S P R O T E U S S T E I N M E T Z



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.

A CONVERSATION WITH

UNION ALUMNI
LEADING
FORTUNE 500 COMPANIES



James Loree '80

President and CEO of
Stanley Black & Decker



Richard Templeton '80

Chairman, President and CEO of
Texas Instruments



Devin Wenig '88

President and CEO of
eBay

Developing Leaders for an Uncertain Tomorrow
Friday, May 10, at 6 p.m.

Union will welcome back to campus three alumni who are CEOs of Fortune 500 companies: James Loree '80 of Stanley Black & Decker, Richard Templeton '80 of Texas Instruments and Devin Wenig '88 of eBay.

President David R. Harris will moderate the conversation, which is free and open to the public. Seating is limited. Doors open at 5:45 p.m. The event begins promptly at 6 p.m. A livestream will be available in overflow spaces to be determined.

IN THE STANLEY O'BRIEN '74 CENTER FOR COLLABORATION AND ENGAGEMENT

SCHEDULE OF EVENTS

FRIDAY, MAY 10	STEINMETZ SYMPOSIUM
9 A.M. – 5 P.M.	<p>● THE CHARLES PROTEUS STEINMETZ SYMPOSIUM</p> <p>Presentations on student creative, scholarly and research achievement. Programs and information available in Schaffer Library, inside the north entrance to Karp Hall, inside the north entrance to Lippman Hall, inside the entrance to the Feigenbaum Center for Visual Arts and inside the entrance to the Wold Center.</p> <p>STUDENT PRESENTATION SESSIONS BEGIN AT 9 A.M.</p>
NOON – 1 P.M.	<p>● MANDEVILLE GALLERY STUDENT TALKS</p> <p>Mandeville Gallery work study students will lead docent talks that highlight artworks, artists and themes from the exhibition, "A Decolonial Atlas: Strategies in Contemporary Art of the Americas." Each talk is 10 minutes.</p> <p>MANDEVILLE GALLERY, NOTT MEMORIAL</p>
5 – 6 P.M.	<p>● STEINMETZ SYMPOSIUM RECEPTION</p> <p>Cash Bar and light refreshments. For presenters, their parents, alumni, guests and faculty sponsors.</p> <p>STANLEY O'BRIEN '74 CENTER FOR COLLABORATION AND ENGAGEMENT</p> <p>A selection of posters presented by student researchers at national professional society meetings during the 2018-2019 academic year will be posted.</p>
6 P.M.	<p>● DEVELOPING LEADERS FOR AN UNCERTAIN TOMORROW</p> <p>A conversation with three Union alumni leading Fortune 500 companies</p> <p>STANLEY O'BRIEN '74 CENTER FOR COLLABORATION AND ENGAGEMENT</p>
8 P.M.	<p>● THE UNION COLLEGE CHOIR</p> <p>● THE UNION COLLEGE AND COMMUNITY ORCHESTRA</p> <p>MEMORIAL CHAPEL</p>
SATURDAY, MAY 11	PRIZE DAY
11 A.M. – NOON	<p>● PRESENTATION OF PRIZES AND RECOGNITION</p> <p>MEMORIAL CHAPEL</p> <p>IMMEDIATELY FOLLOWING</p> <p>● PRIZE DAY RECEPTION</p> <p>REAMER CAMPUS CENTER PATIO</p>
2 P.M.	<p>● UNION COLLEGE JAZZ ENSEMBLE</p> <p>EMERSON AUDITORIUM, TAYLOR MUSIC CENTER</p>

TABLE OF CONTENTS

FRIDAY, MAY 10	
ALL DAY	Art Exhibits 4
SESSION I 9 – 10:40 A.M.	Oral Presentations 6
SESSION II 10:50 A.M. – 12:30 P.M.	Oral Presentations 11
SESSION III 12:30 – 1:50 P.M.	Engineering Project Display 16 Minerva Fellows 16 Poster Presentations 17
SESSION IV 1:50 – 3:30 P.M.	Oral Presentations 21
SESSION V 3:40 – 5 P.M.	Oral Presentations 25
STEINMETZ DANCE PERFORMANCE 4 P.M.	28
STEINMETZ CONCERT 8 P.M.	30
SATURDAY, MAY 11	
UNION COLLEGE JAZZ ENSEMBLE SATURDAY AT 2 P.M.	31

THE CONVENIENCE STORE WILL BE OPEN:

Friday, 8:45 a.m. – 11 p.m.
 Saturday, 10:30 a.m. – 11 p.m.
 Sunday, 11 a.m. – 11 p.m.

THE BOOKSTORE WILL BE OPEN:

Friday, 8:45 a.m. – 4:30 p.m.
 Saturday, 10:30 a.m. – 3:30 p.m.
 Sunday, closed

THE NOTT MEMORIAL WILL BE OPEN:

Friday, 10 a.m. – 6 p.m.
 Saturday, 10 a.m. – 6 p.m.
 Sunday, 10 a.m. – 6 p.m.

SCHAFFER LIBRARY WILL BE OPEN:

Friday, 8 a.m. – midnight
 Saturday, 10 a.m. – midnight
 Sunday, 10 a.m. – 2 p.m.

THE 2019 ANNUAL STEINMETZ SYMPOSIUM STUDENT ART EXHIBITION

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

The Visual Arts Department is delighted to present our 2019 Steinmetz Symposium exhibition, an annual highlight of select student work chosen by our Studio Art faculty. The breadth and diversity of this exhibition showcase the range of courses students are actively engaging 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. We are proud of our students' achievements and hope that you will enjoy seeing all their hard work.

LORRAINE MORALES COX // ASSOCIATE PROFESSOR AND DEPARTMENT CHAIR

PRESENTING 174 OF THE BEST AND MOST ACCOMPLISHED STUDENT WORKS OF THE ACADEMIC YEAR.

MARTIN BENJAMIN
PHOTOGRAPHY

CHRIS DUNCAN
SCULPTURE

LAINI NEMETT
PAINTING & DRAWING

FERNANDO ORELLANA
DIGITAL ART

SANDY WIMER
PRINTMAKING & DRAWING

EXHIBITORS IN DRAWING AND PAINTING

**PROFESSORS
LAINI NEMETT
AND JENNY KEMP**

Kaitlyn Blow
Ava Disaviano
Lauren Elder
Anh Lee
Rachel Meyers
Jenny Mutch
Janae Nieto
Melissa Pedro
Sohpie Potter
Kristen Westerhoff
Zihan He

EXHIBITORS IN DRAWING AND PRINTMAKING

**PROFESSOR
SANDY WIMER**

Marina Angelopoulos
Dylan Banever
Erin Besch
Miles Bigelow
Caitlin Buchanan
Lauren Capron
Matthew Caulfield
Ava Disavino
Lauren Elder
Sahar Shakeel
Sophia Gebara
Madeline Goldberg
Lilith Haig
Zihan He
Emma Houston
Gamze Inanc
Samantha Kelley
Dhea Kothari
Jenny Mutch
Walani Ndhlovu
Maya Newell
Raya Petrova
Sophie Potter
Emma Puhalski
Pamela Rice
Josephine Sasso
Sahar Shakeel
Sophie Shapiro
Eleanor Vaughan



THE 2019 ANNUAL STEINMETZ SYMPOSIUM STUDENT ART EXHIBITION

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



EXHIBITORS IN PHOTOGRAPHY

PROFESSOR MARTIN BENJAMIN

Emily Alston
Nicole Bergamini
Emily Caruso
Trey Everett
Zihan He
Gamze Inanc
Jihyeon Jung
Changho Kim
Nik Lockwood
Melany Lucero
Olivia Ma
Delano McFarlane
Stephen Nadler
Halle Nagorsky
Edwin Palma Solis
Jenna Paszek
Kallan Picconi
Jack Pierre
Gabrielle Polott
Miazoshi Ren
Reagan Schwartz
Alexandra Troustilek
Tina Tully
Bowe Xu
Niuniu Zhang
Anthony Zhuang

EXHIBITORS IN SCULPTURE

PROFESSOR CHRIS DUNCAN

Miles Bigelow
Emily Bobruff
Sean Dephillips
Tyler Greenwood
Keegan Guinn
Trust Martin
Isabel McCarthy
Jenna Paszek
Emily Phillips
Sara Shenkman
Elizabeth Soper
Tina Tully

EXHIBITORS IN DIGITAL ART

PROFESSOR FERNANDO ORELLANA

Daria Agadzhanova
Kate Blow
Lauren Capron
Shannon Collins
Lisa DeMoranville
Juliana Diaz
Abby Ellis
Hein Htet Aung
Gamze Inanc
Ben Kopchains
Nicholas Lockwood
Melany Lucero
Samantha Miller
Annika Morrill
Maya Newell
Sophie Potter
Sarah Shenkman
Manuel Ventura
Yizhou Zhuang



SESSION I

9 – 10:40 A.M. ● CONCURRENT ORAL PRESENTATIONS

KARP 001

FINANCE

MODERATOR: FUNDA DOGRUE

9 A.M. // ROBERT RIGHI

The Shifting Dynamics of International Currency Reserves

9:20 A.M. // AIDAN LOH

The Effectiveness of Chinese Monetary Policy

9:40 A.M. // SEBASTIEN LUBRANO

Studying the Characteristics and Efficiency of Venture-Capital Funded Startups

10 A.M. // TUNG (JUSTIN) NGUYEN

Data Center REITs: Performance and Portfolio Considerations

KARP 002

MIGRATION

MODERATOR: LEWIS DAVIS

9 A.M. // CASEY MORIARTY

The Public History of Immigration: Exploring the Ellis Island National Museum of Immigration

9:20 A.M. // PEDRAM MALAKIAN

The Impact of Generational Experiences on Anti-immigration sentiments

9:40 A.M. // TATSURO MURAKAMI

A Case Study of Blockchain Use in Azraq Refugee Camp

KARP 004

GENDER VIOLENCE IN CONTEMPORARY ARGENTINE LITERATURE

MODERATOR: WILLIAM GARCIA

9 A.M. // DANIELLE PINNEY

The Influence of Gender Perception in *Le viste la cara a Dios* (2011)

9:20 A.M. // SAMUEL FOGARTY

The Hidden Power of Femininity

9:40 A.M. // ENRIQUE ROMAN

A Ghostly Revelation

10 A.M. // MADELEINE HAMPARIAN

Contemporary Argentine Literature and Gender Violence: Invoking Memories through Selva Almada's *Chicas Muertas*

KARP 005

REPRODUCTION AT THE MOLECULAR LEVEL

MODERATOR: BRIAN COHEN

9 A.M. // BRANDON ZAHLER

Investigating the Lipid Raft Residency and Caveolin Binding of the Human Follicle Stimulating Hormone Receptor

9:20 A.M. // SCOTT KOSZER

Developing an APEX Assay to Investigate Signaling and Protein Interaction of the Human Follicle Stimulating Hormone Receptor

9:40 A.M. // MOLLY BROGIE

Characterization of Membrane Microdomains on a Human Granulosa Cell Line by Atomic Force Microscopy

10 A.M. // JILLIAN LOVE

Modulating Human Follicle Stimulating Hormone Signaling Activity Using Small Molecules

10:20 A.M. // ELIZABETH ALTMAN

Mutations in the Human Follicle Stimulating Hormone Receptor Caveolin Binding Motif Cause Increased Basal Activation

SESSION I

9 – 10:40 A.M. ● CONCURRENT ORAL PRESENTATIONS

KARP 008

ENGLISH HONORS THESIS I

MODERATOR: JENELLE TROXELL

9 A.M. // KATIE CASADO

Mothers and Daughters

9:20 A.M. // ANGELICA DEDONA

The Afrofuturist Critical Lens

9:40 A.M. // ANDREA HUEY

Harry Potter and the Symbolic Order: A Psychoanalytic Deconstruction of the Hero

10 A.M. // ELIZA SHOCKET

Representations of Autism in Fiction

10:20 A.M. // CAMERON YANG

Affect as Phenomenon: Why Critics of Feeling Can Never Be Validated

KARP 105

NEUROSCIENCE

MODERATOR: QUYNH CHU-LAGRAFF

9 A.M. // KATHRYN BANGSER

Investigation of the Presence of a Developmentally Regulated Gene Controlling Neural Segmentation in Dragonflies

9:20 A.M. // LAUREN ELDER

Effects of Body Temperature on Action Potential Responses of Target-Selective Descending Neurons in Aeshna Dragonflies

9:40 A.M. // BEEJIT SARKER

A Quick Look into the “Fast as Lightning” Response: A Neural Investigation into the Maximal and Optimal Speeds of Prey for Aeshna Dragonflies

10 A.M. // XIER ZHAO

Testing the Effect of Orthographic Distinctiveness on Memory Processing Using Eye Tracking

10:20 A.M. // OLGA KHAZEN

An Event Related Potential Study of Skill Learning in Unpaired Participants



SESSION I

9 – 10:40 A.M. ● CONCURRENT ORAL PRESENTATIONS

LIPPMAN 012

KLEMM FELLOWS I

MODERATOR: TOM LOBE

9 A.M. // SYEDA KANEEZ FATIMA

Morocco Diaries

9:20 A.M. // EMMA LEE

The Different People I met in Cape Town, South Africa

9:40 A.M. // JESSALYN LI

The Fevers Unit: Holistic HIV Care in Ghana

10 A.M. // MARISA PETERS

Healthcare in Madagascar

10 A.M. // GILLIAN SINGER

Klemm Fellowship 2018: Bolivia

LIPPMAN 014

POLITICAL TURMOIL

MODERATOR: KRISTIN BIDOSHI

9 A.M. // KEVIN FITZPATRICK

The Incidence of Intra-State Ethnic Violence:
An Empirical Study on Ethnicity and Values

9:20 A.M. // SEBASTIAN VIDMAR

Immigration and Voting for a Far Right Party: Evidence
from Sweden's 290 Municipalities

9:40 A.M. // IRVING CORTES-MARTINEZ

Mexico: Neoliberalism, Popular Grievances and the
Rise of Andra's Manuel Lopez Obrador

10 A.M. // MARIA LOVETERE

Negative Impacts of European Union Expansion on
Romani Populations



SESSION I

9 – 10:40 A.M. ● CONCURRENT ORAL PRESENTATIONS

LIPPMAN 016

HEALTH CARE AND SOCIETY

MODERATOR: KAYWANA RAEBURN

9 A.M. // ANNA CURTIS

Infant Mortality Among African Americans: The Influence of Social Factors and Strategies for Equitable Treatment

9:20 A.M. // CHRISTIE DIONISOS

Neurosexism: The Extent to Which Sex Differences in Mental Illness are Neurologically Explained Versus Socially Constructed

9:40 A.M. // MARC PERLMAN

How Do the Type and Intensity of Chronic Pain Affect an Individual's Willingness to Take Risks?

10 A.M. // DHRUV PATEL

Radiographic and Health Economic Analysis of Acetabular Retractors Placement Relative to Neurovascular Structure in Various Total Hip Arthroplasty Surgical Approaches

10:20 A.M. // TALITHA KUMARESAN

The Business Cycle and Health Outcomes in the U.S.

LIPPMAN 017

DRUGS

MODERATOR: J. DOUGLASS KLEIN

9 A.M. // SAPAN SHAH

Efficacy of the Policy Response to the American Opioid Crisis: A Case Study of Three States

9:20 A.M. // DYLAN WINDLE-PUENTE

Identifying the People at Risk: Which Populations are the Opioid Epidemic Affecting the Most?

9:40 A.M. // BRIAN SHORR

The Impact of State-level Naloxone Access Policies on Opioid-related Mortality and Treatment Admissions

10 A.M. // JOHN SULLIVAN

The Effects of E-Cigarette Policies on Adult Tobacco Use

10:20 A.M. // JONATHAN FIELDS

The Generic Paradox: Insight to the Process Behind Drug Pricing

LIPPMAN 101

GENERATION NOW

MODERATOR: CHRISTINE HENSELER

9 A.M. // GIUSEPPE DE SPUCHES, HAYDEN PANETH, MEGAN BROWN, KATE OSTERHOLTZ, KATHLEEN SINATRA

Generation Now: Our Book Production Story

OLIN 306

PROXY RECORDS AND ENVIRONMENTAL CHANGE

MODERATOR: ANOUK VERHEYDEN-GILLIKIN

9 A.M. // ELIZABETH ANDONIE

Organic Pollution in Urban and Rural Streams in the Schenectady-Schoharie Region

9:20 A.M. // HEIDI O'HORA

Carbon Dynamics in a Marsh-dominated Estuarine Ecosystem

9:40 A.M. // HAYLEY BENNETT

A Multi-species Survey of Nitrogen Isotopes in Marine Mollusk Soft Tissues From a North Carolina Coastal System: A Potential Indicator of Nitrogen Loading

10 A.M. // ELIZABETH CILIA

Detecting Eutrophication in Coastal North Carolina with the $\delta^{15}\text{N}$ of Seagrasses and Algae

10:20 A.M. // ANNIKA WELLS

ENSO-Induced Floods Recorded in Lake Sediment Cores from Las Cajas National Park, Ecuador

SESSION I

9 – 10:40 A.M. ● CONCURRENT ORAL PRESENTATIONS

SCHAFFER 204

FRENCH AND FRANCOPHONE STUDIES

MODERATOR: MICHELLE CHILCOAT

9 A.M. // OUMOU ZAKARIA

The Evolution of the Presence and Recognition of Afro-Germans in Germany, from Colonization Until Today

9:20 A.M. // MATTHEW CARRIGAN

Understanding the Rise of Marine Le Pen in France

9:40 A.M. // ANNA GAGION

French Feminism and Muslim Women

10 A.M. // NIUNIU ZHANG

The Existence of French Existentialist Cinema

WOLD 128

DEVELOPMENTAL BIOLOGY

MODERATOR: NICOLE THEODOSIOU

9 A.M. // OLIVIA ZIMMERMAN, ERENDIRA GARCIA PALLARES

Extraembryonic Membranes and Their Effect on Development in the Chick

9:20 A.M. // EMMANUELA OPPONG

Morphologic Analysis of the Spiral Intestine During Development in *Leucoraja erinacea*

9:40 A.M. // VANESSA RASKIN

Computational Analysis of the Developing Spiral Intestine in *Leucoraja erinacea*

10 A.M. // KIRSTEN KAPTEIN

Pitx2 Patterning During *Leucoraja erinacea* Spiral Gut Development

WOLD 225

AEROGELS AND THEIR APPLICATIONS

MODERATOR: ANN ANDERSON

9 A.M. // ANDREW HAMLIN

Micro-PIV Analysis of the Fluid Velocity Boundary Layer Over Hydrophobic and Superhydrophobic Aerogels

9:20 A.M. // ALLISON STANEC

Etched Silica Aerogels

9:40 A.M. // COLIN BLESSING

Implementing Aerogel into Chimney Pipe

10 A.M. // XIAO PENG LI

Investigation of Ceria-nickel-containing Aerogels for Catalytic Converter Applications

10:20 A.M. // ALLISON KING

Diffusivity Measurements of Aerogels



SESSION II

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

BAILEY 207

MATH

MODERATOR: CHRISTINA TONNESEN-FRIEDMAN

10:50 A.M. // RYAN BALDWIN

Boundary Value Problems Related to Extremal
Kaehler Metrics

11:10 A.M. // ALLEGRA DAWES

Geometric Group Theory and Hyperbolic Groups

11:30 A.M. // JULIA GREENE

Geometric Constructions, Origami and Galois Theory

11:50 A.M. // PAIGE ISSER

Examining Relationships Between Cancer Diagnosis
Rates and Demographic Factors in New York State

12:10 P.M. // NIUNIU ZHANG

Category Theory and Universal Properties

KARP 001

TOPICS ON FINANCE AND MACROECONOMICS

MODERATOR: DONG CHENG

10:50 A.M. // KEVIN MCNOBLE

The Effects of Oil Price Changes on the Macroeconomy
of Oil Producers: Evidence from Russia

11:10 A.M. // ANDREW KIELAR

Scandals and the Stock Prices: Evidence from
U.S. Listed Firms

11:30 A.M. // JAMES DIVER

The Promoting Effect of Housing Prices on Employment:
Evidence from the United States

11:50 A.M. // MATTHEW MASCIOCCHI

Analyzing 21st-Century American Corporate
Power through the Lens of 18th-Century British
Trading Companies

KARP 002

WORK AND GENDER

MODERATOR: YOUNGHWAN SONG

10:50 A.M. // EMMA SPOTBERY

Female Underrepresentation in Adirondack-based
Conservation Movements

11:10 A.M. // ANNA GAGION

Female Forest Rangers in the New York State Department
of Environmental Conservation

11:30 A.M. // RORY NIZOLEK

The Diminishing Male Labor Force Population:
What the American Time Use Survey Suggests About
How Male Nonworkers Allocate Their Time

11:50 A.M. // MEICHAH CHEN

The Effect of Variation in Gender-Math Stereotype
Content on Loss and Risk Averse Behavior

KARP 004

GENDER

MODERATOR: ANDREA FOROUGH

10:50 A.M. // RACHEL MEYERS

The Sexual Double Standard in American Society:
Analyzing The Factors That Influence Gender-
Based Discrimination

11:10 A.M. // HANNAH ELLEN

The Feminist Pursuit of Happiness: An Analysis of
Feminist and Freudian Theories of Individualistic and
Communalistic Pleasure and Joy

11:30 A.M. // GILLIAN SINGER

Acting Hysterical: Analyzing the Construction,
Diagnosis and Portrayal of Historical and Modern
"Hysterical" Women

11:50 A.M. // DREW LENZ

LGBTQ+ Asylum Seekers Versus the U.S. Asylum Regime

SESSION II

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

KARP 005

EXERCISE AND ITS EFFECTS

MODERATOR: CAY ANDERSON-HANLEY

10:50 A.M. // AMY HAVEN

The Social Determinants of Health and the Obesity Epidemic: A Public Health Analysis of Childhood Obesity in Rural New York State

11:10 A.M. // ALICIA CLARKE

Effects on Exercise and Meditation on Reported Stress and Cortisol in an Undergraduate Population

11:30 A.M. // ALEXA PULEIO

Neuro-exergaming for Older Adults with Mild Cognitive Impairment (MCI): A Single Bout of Interactive Physical and Cognitive Exercise (iPACES v2.5)

11:50 A.M. // MICAELA HAYTON

Neuropsychological Effects of the Interactive Physical and Cognitive Exercise System (iPACES) for Youth on the Autism Spectrum

12:10 P.M. // ELIZABETH JOHNSON

Neuropsychological Assessment in the Age of Technology: Comparing Paper vs. Electronic Versions of the Stroop Task

KARP 008

ENGLISH SOPHOMORE PROJECTS

MODERATOR: JORDAN SMITH

10:50 A.M. // SHEA DELEHAUNTY

The Space Between: An Analysis of Estrangement

11:10 A.M. // SOPHIE HURWITZ

Life and Family: A Short Reading of Poetry

KARP 105

ORGANISMS

MODERATOR: SCOTT KIRKTON

10:50 A.M. // MEAGHAN BARROS, ABIGAIL VALACHOVIC

The Effect of Sex and Pregnancy on Jump Performance in Grasshoppers

11:10 A.M. // TROY HANSEN

Analysis of the Structure of Anoline Dewlaps Using Multiple Imaging Techniques

11:30 A.M. // MATTHEW HOLDAWAY, JUSTIN ANDOLINA

Analysis of the Use and Perception of Motion in the Lizard *Anolis sagrei*

LIPPMAN 012

KLEMM FELLOWS II

MODERATOR: TOM LOBE

10:50 A.M. // SRUTI BANDLAMURI

Non-Communicable Diseases (NCDs) in Fiji: IndoFijians vs. iTaukei

11:10 A.M. // TAWREK EDDINGTON

Argentinian Law and Human Rights

11:30 A.M. // EMMANUELA OPPONG

Exploring Healthcare at St. Joseph Hospital (Moshi, Tanzania)

11:50 A.M. // SHANNON WEST

Sri Lankan Healthcare: What Our Countries Can Learn from Each Other

SESSION II

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

LIPPMAN 014

SPORTS AND FASHION

MODERATOR: BRADLEY LEWIS

10:50 A.M. // MAHA MIAN

The Economics of Fashion: Do Newcomers to the Industry Have a Chance?

11:10 A.M. // ALAINA THAXTER

Volleyball Net Monitoring System

11:30 A.M. // ALEXA ROSEN

Advertising in eSports: Effects of Ad Animation and In-game Dynamics on Viewers' Demand for Advertisement and Product Consumption

11:50 A.M. // PATRICK BROWN

Efficiency of Sports Gambling Markets

LIPPMAN 016

DEVELOPMENTS IN HEALTHCARE DELIVERY

MODERATOR: CAROL WEISSE

10:50 A.M. // RACHAEL ROSE PARISI, SOPHIA FOSTER

Using ArcGIS Mapping Tools to Identify Potential Training Opportunities in End of Life Care

11:10 A.M. // SOPHIA FOSTER

Development of an End of Life Care Training Module Using Videotaped Testimonies of Former Peer Caregivers

11:30 A.M. // THOMAS GAGLIARDI

Mindfulness Meditation at Union College:
The 2018-2019 Obenzinger Scholarship Project

11:50 A.M. // BRIAN LEE

The New Trend in Medicine: Motivations, Perceptions and Care Coordination in Integrative Medicine



SESSION II

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

LIPPMAN 017

EFFECTS OF CLIMATE CHANGE

MODERATOR: KATHLEEN LOGIUDICE

10:50 A.M. // SOFIA BOSWELL

Tick-Borne Diseases are on the Rise in the United States:
An Analysis of the Explanations Behind Tick Expansion

11:10 A.M. // ANGELICA DEDONA

Environmental Racism: The Next Refugee Crisis

11:30 A.M. // MARIELLE CHRISTIE

How to Combat Post-Natural Disaster Related
Environmental Gentrification and Environmental Inequality
Accelerated by Climate Change

LIPPMAN 101

POLITICS, RESOURCES AND IDEOLOGY

MODERATOR: ZOE OXLEY

10:50 A.M. // CALEB YOKEN

Cartel Practices and Policies in the World War II Era

11:10 A.M. // NATHAN LEVI

The Belt and Road Initiative: How China Hopes to
Reshape Global Infrastructure and Influence

11:30 A.M. // GIZELA THOMAS

Corn in American History and Politics

11:50 A.M. // JUSTIN LANGE

Make America Great Again? American Conservatism
and Donald Trump



SESSION II

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

OLIN 106

TENSEGRITY ROBOTS

MODERATOR: JOHN RIEFFEL

10:50 A.M. // THOMAS SIPPLE

Dynamics of a Tensegrity Robot Strut

11:10 A.M. // JONATHAN KIMBER

Developing Efficient Learning Policies for Tensegrity Robots

11:30 A.M. // ZONGLIANG JI

Explore the Behavioral Repertoire of a Wireless Tensegrity Robot by MAPElites Algorithms

OLIN 306

THE ASSEMBLY OF TECTONIC TERRANES AND ORIGINS OF MAGMAS

MODERATOR: HOLLI FREY

10:50 A.M. // WILL FISHER

Zircon Facies in the Paleocene-Eocene Orca Group Indicate a Provenance Link to the Chugach Terrane, Prince William Sound, Alaska

11:10 A.M. // MOLLIE POPE

Provenance of Sandstone Conglomerate Clasts of the Orca Group in Prince William Sound, Alaska

11:30 A.M. // REBECCA LIPPITT

Crystallization Conditions of the Tumalo Tuff, Bend Pumice and Shevlin Park Tuff near South Sister, OR

11:50 A.M. // MADISON CORCORAN

Crystal-poor Rhyolite Plagioclase Textures at South Sister Volcanic Field in Central Cascade Arc, Oregon

12:10 P.M. // MATTHEW COLE

Laser Ablation U-Pb Zircon Dating by Triple Quad ICP-MS; Can Mercury Interference Removal Lead to More Precise Ages: An example from the Adirondack Highlands, N.Y.

S&E N205

FLUID DYNAMICS

MODERATOR: ALI HAMED

10:50 A.M. // IAN SPECK

The Effect of Gaps on the Turbulent Flow Within and Above Canopies Resembling River Vegetation

11:10 A.M. // ADAM PETERLEIN, LINDSEY RANDLE

An Experimental Investigation of the Perturbation of a Turbulent Boundary Layer by Two Cylinders Arranged in Tandem

11:30 A.M. // THOMAS BYRNE

Design and Efficiency Analysis of a Horizontal-Axis Wind Turbine

11:50 A.M. // NATHAN HAMER

Design and Construction of a Dynamometer for the Union College Water Tunnel

12:10 P.M. // LIAM NADIRE

Liebau Pumping: A RIM-PIV Study of Valveless Pumping

WOLD 225

NANOTECHNOLOGY

MODERATOR: MIKE HAGERMAN

10:50 A.M. // JOCELYNE AKAMALIZA

Biopolymer Based Triboelectric Nanogenerators

11:10 A.M. // SCOTT AMBOS

Water Dispersible Cadmium Selenide Nanoparticles for Solar Energy

11:30 A.M. // YIFEI ZHU

Organically Modified Carbon Nanotube Thin Films for Electronic Applications

SESSION III

12:30 P.M. ● ENGINEERING TEAMS ● MACLEAN FAMILY ATRIUM, WOLD CENTER

**ALLISON KING, SAMUEL VEITH, MARK SOLOMON,
TYLER GREENWOOD, COLIN KEALLY, ELLIS WALDMAN,
NICK DECHENE**

Union College Baja Racing: Design of a Single Seat
All-Terrain Vehicle

MADELEINE MILLER, DANIEL BRACK, SIRUS NEGAHBAN

Union College Rocket Team

**YU CHANG OU, PYAE SONE AUNG, LAM NGO, SAI HO,
COURTNEY CASEY, AIKATERINI PETRIDOU,
NIKOS PAPAIOANNOU, ILLYAS EL ARIF, KANE JAKLITSCH,
ANTHONY YANG, EDWARD GEBARA**

Union College Robotics Crew Micromouse Demos

**AARON RAPAPORT, RODERICK LANDRETH,
ALEXANDER PRADHAN**

Engineering a Modular, Ultra Low Weight, High Lift,
Remote Controlled Aircraft

12:30 P.M. ● MINERVA FELLOWS ● SCHAFFER LIBRARY

RANDI BROADWELL

Witkoppen Health & Welfare Clinic, South Africa

CLAIRE KELLY

Dharma Endeavours, India

MATTHEW LIQUORI, NICHOLAS WILLIAMS

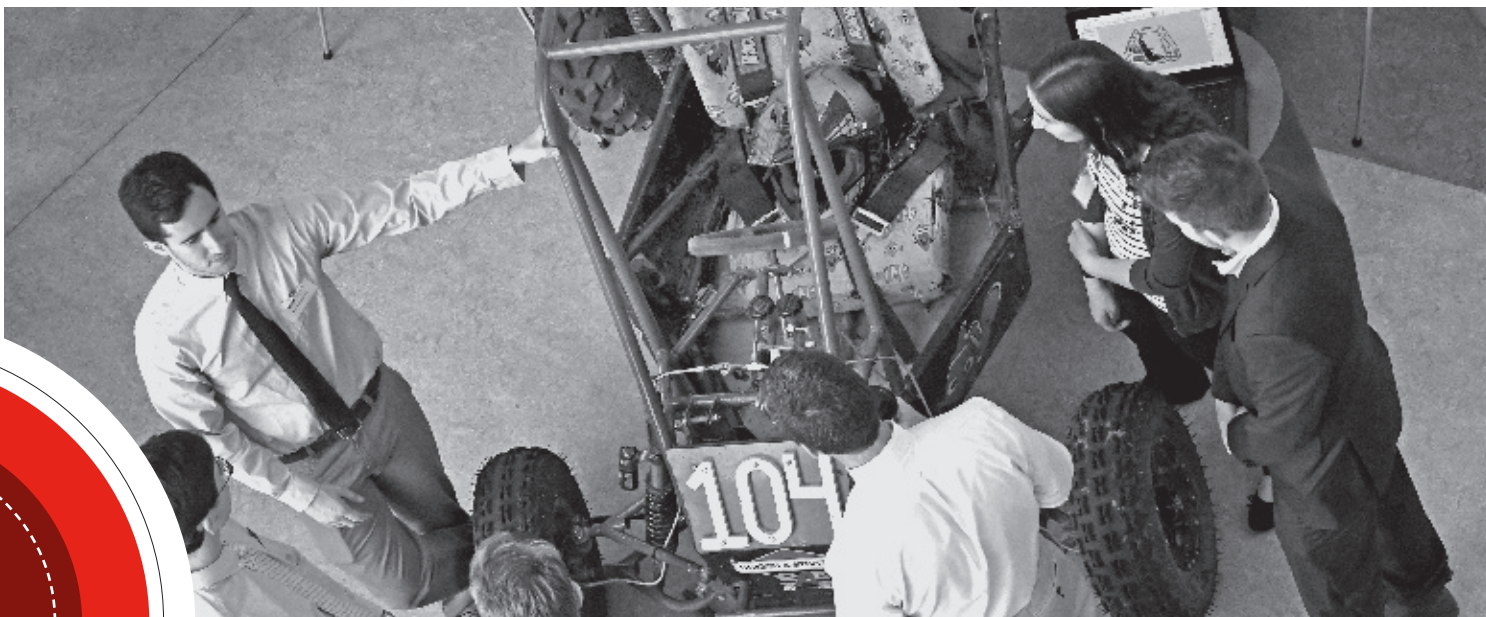
Engeye, Uganda

ANGUS MCREYNOLDS

Union College Minerva Fellowship 2018-2019

EMMA PARECE, ISABELLE RHODES, LUKE MCCAFFREY

The Global Child, Cambodia



SESSION III

12:30 – 1:50 P.M. ● POSTER SESSION I ● SCHAFER LIBRARY

THOMAS ANDRE

Fabrication and Characterization of Cerium- and Copper-Containing Aerogels

CHRIS AVANESSIAN

Microscopic Characterization and Elemental Mapping of Catalytic Aerogels

CHRIS AVANESSIAN

Calculating Surface Tension with Capillary Waves

ELSA BECHU

Modeling Free Convection in Bryophytes Using Temperature Distributions Within the Canopy

ISABELLA BERGAMI

The Location, History and Current Activity of Kilauea in Hawaii

HELEN BLACK

Measuring the Mass of the Pisces-Perseus Supercluster with the APPSS Survey

KARA BROWN, ALEXANDER NEWHOUSE

A Novel GI Bleed Solution: SmartClips Achieving and Maintaining Hemostasis

NAM BUI

Optimal Error Handling Strategy for Conversational Agent

CARLY BURNS

Analysis of the United States Healthcare System and the Challenges Faced by Citizens of Lower Socioeconomic Status

ALAINA CHORMANN

Calibrating Hydroclimate Proxies in a Modern Southern Portuguese Speleothem

JACK EDSON

Using Atomic Force Microscopy to Characterize Local Material Environments in Developing Embryos

LYDIA HURSH

Women's Rights Under Brehon Law

SAMUEL KEMP

Forces Between Inclusions on a Lipid Bilayer

DEREK KHNAIZIR

Global Impact of the U.S Economy: An Analysis of the Channels of Interconnection and their Transmission Effects

JONATHAN KIMBER

Efficiently Searching for Large Strong Uniquely Solvable Puzzles

SAMANTHA KRUSHAK

Variability in Female Preference Traits of Fruit Flies

SAMUEL KUPIEC

Seward Fellows Independent Project: The Ecosystem of the Exhaust Catalysis Industry

MATTHEW LAROSA, RYAN PUGLISI,

CHRISTOPHER O'BRIEN

Union College Catalytic Aerogel Testbed

NAOMI ARIELLE LAWTON

Modification of an Industrial Fungus to Disable a Gene Encoding an Enzyme for the Biosynthesis of the Amino Acid Tryptophan

GEORGIA MRAZ, JACOB FEINSTEIN,

CHRISTOS KAKOGIANNIS

EXOFAST Analysis of Exoplanet Transits Observed at the Union College Observatory

CHARLES NELSON, EMMA MERLINO, BRENDAN LAING

Cannulation Pilot to Eliminate Recirculation During Hemodialysis

NATHAN OASIS

Bridging the Semantic Gap in Music

NICOLE PULLA

Jornaleras: The Unacknowledged Challenges of Women Day Laborers

SESSION III

12:30 – 1:50 P.M. ● POSTER SESSION I ● SCHAFFER LIBRARY

HUNTER REINHARDT

Semiconductors, Business Organization and Technological Innovation in a Fragmented World

JOANA SANTOS, MATTHEW ROIZIN-PRIOR

Modification of the Rapid Supercritical Extraction Method to Make Aerogels for Specific Applications

IAN SCILIPOTI

Teleoperation of Robotic Systems in Virtual Reality

ALEXANDER SHAKIBAI

Morphological Analysis of Nanocomposite Films on Titanium Alloys for Biomedical Applications

JASON SINDONI, MARTIN PARGIELLO, PHOENIX MENDES

Observations of Koronis Family Asteroids during 2017-19 at the Union College Observatory

JAMES STANLEY

Testing Aerogels as Diesel Particulate Filters

KATHLEEN SWANSON

Bionanocomposite Films atop Titanium Alloys

SARAH TAHA

A Proposed Improved Inferior Vena Cava Filter Retrieval Mechanism Design

RAMSEY WALSH

Environmental Concern and the Global Financial Crisis in the European Union

EVA WILLARD-BAUER

Baseline Monitoring of Physical Parameters and Enterococci Levels in the Hans Groot Kill, Schenectady, N.Y.



SESSION III

12:30 – 1:50 P.M. ● POSTER SESSION II ● MACLEAN FAMILY ATRIUM, WOLD CENTER

ZAID AL-MOHRABI

Optimization and Performance of Bifacial Solar Modules

HALLIE BATCHELDER

Emotional Manipulation in Hellenistic Art and Architecture

JACKSON BECKMAN

Light Pollution and Dark Sky Refuges: Human Enjoyment, Ecological Importance and Societal Challenges

BENJAMIN BECKWITH

The Physics of Rowing: Accelerometer and Video Analysis on Ergometers

CHRISTOPHER BENDIX

Heat Transfer in Mycelium

COLIN BROWNLEE

Design of Direct Clip Hanger for Sport Climbing

HANNAH CHRISTIAN

The Ketogenic Diet as a First-Line Epilepsy Treatment: A Meta-Analysis

SILAS CLEVELAND

Control of Thermally Activated Nylon Actuators

ANDREW CROUTH

Hydro-Power in Antiquity: 3D Printed Mills

BRANDON DEMPSEY

Use of Heat Pipes in PCM Latent Heat Storage

DANIELA DI CAPUA

Environmental Justice: The Disproportionate Burden Experienced by Minority and Low Socioeconomic Status Groups

KYLE DONEY

Digitizing Caesar: The Case for a Latin eReader

MATTHEW EGGLEIN

Analysis for Phishing Prevention

OGHENERHONA ESEYADE

Characterizing DC Motors for Small Projects Using a Prony Brake

IRELEE FERGUSON

Neuropsychological Effects of the Interactive Physical and Cognitive Exercise System (iPACES) for College Students with Attention Deficit Hyperactivity Disorder

KEVIN GOLDBERG

Thermal Energy Storage Using Phase Changing Wax

JUSTIN GOLD, AIKATERINI PETRIDOU

Replicating Data Collection of Bayesian Optimization on a Six-Bar Tensegrity Robot

MOLLY GOODMAN

2019 Student Green Fee: The Eco-Renovation of Ozone House

JONATHAN GRAZIOSI

Main Controller of DC Microgrid

LISA GU

Automated Greenhouse Watering System for Schenectady ARC

NATHALIE GULLO

The Survival Processing Effect Through the Lens of Evolution and Self-Reference

JILLIAN GUTHRIE

Relativistic Electron Dynamics: An Upper Level Laboratory Experiment

ADAM HALL

Power Generation of Hybrid Photovoltaic and Thermoelectric Modules

SAI ZHUNG HO

Circuit Breaker Failure Analysis

DAVID KHAZEN

Drag Reduction on a Backward-Facing Step: Effect of Tabs and Their Spacing

TAYLOR KURTZ

Single Photon Experiments Using Spontaneous Parametric Down Conversion

SESSION III

12:30 – 1:50 P.M. ● POSTER SESSION I ● WOLD CENTER ATRIUM

GRIFFIN LAMP

Alternative Design for Uniform Quenching of Aluminum Samples

PETER LEARY

Design and Evaluation of Cooling Systems for PV Modules

JULIAN MARTIN

Simulating Dragonfly Prey Flight with Parallel Robotics

QUINN MCCARTHY

Economic Effects of Retail Marijuana Legalization: Evidence from Colorado

MAX MCGEOWN

Temporal and Spatial Variation in Ion and Trace Mineral Concentration in Urban and Rural Streams in and Around Schenectady

DUNCAN MULARZ

Twist Assist Bottle and Jar Opener

COLIN MURPHY

The Nature of Asset Bubbles and the Timing of Their Burst

YU CHANG OU

Robotic Arm PID Controller

TALIA PARADISO

Feminine Beauty as a Precursor to Fear in the Myth of Arethusa

JUSTICE PARK

Studying Visual Motion Perception in the Lizard *Anolis carolinensis* using the Optomotor Response

AIKATERINI PETRIDOU, JUSTIN GOLD

Replicating Data Collection of Bayesian Optimization on a Six-Bar Tensegrity Robot

BRENDAN PRITIKIN

Development of an Inexpensive Seismometer for Use in Educational Curriculum

NURUPA RAMKISSOON

The Effects of the ABC FSH Receptor Mutant on Follitropin Binding and Signal Transduction

AARON RAPAPORT

Inkjet Printing of Solar Nanocomposites

PETER RICHMOND

Optimization of Solar Power

JACOB ROTHSCHILD

All-In-One CNC Machine

JOHN SCHLATER

Ion Beam Analysis of Fabric Dyes from Myanmar

PRANAV SHRESTHA

Mode-meter for distributed computing of Inter-area Oscillations in the Power Grid

JASON STACK

Design and Construction of Optical Tweezers

KEVIN TRIGO

Modeling an Expanding Universe

NELSON TROMBLEY

Custom Circuit Board Design for Wireless Tensegrity Robots

THANH-LIEM VU

Lead Diffusion in Iron Sulfides: Experimental Applications to Study the Differentiation of Iron Meteorites and Early Global Melting

GUANXIAO YANG

Label-Free Imaging of Myelination in Adult Zebrafish Using Photoacoustic Microscopy

SESSION IV

1:50 – 3:30 P.M. ● CONCURRENT ORAL PRESENTATIONS

**EMERSON HALL,
TAYLOR MUSIC CENTER**

ARTS

MODERATOR: JENNIFER MATSUE

1:50 P.M. // SOPHIE SHAPIRO

Institutions Around Avant-Garde Painting in 19th-century Paris

2:10 P.M. // SAMANTHA MILLER

Bridging the Dimensions Through Automated Canvases

2:30 P.M. // DANIEL TOLAND

Psychology, Emotion, and Jazz: Using Cognitive Music Theory to Understand Differences in Emotional Qualities of Classic and Contemporary Jazz Music

KARP 001

FEAR, DEATH AND RELIGION

MODERATOR: JOSHUA HART

1:50 P.M. // HANNAH WEEKS

Spirituality and Personality

2:10 P.M. // SAMANTHA MARIN

The Relationship Between Religiosity and Implicit vs. Explicit Death Anxiety

2:30 P.M. // CAROLINE EVERTS

Letting the Dead Speak: An Examination of Burial Practices and Social Identity

2:50 P.M. // KHOA TRAN

Between Life and Death: On the Tomb House and the Tomb Abandonment Ceremony of the Jarai Tribe of the Vietnamese Central Highland

KARP 002

VIOLENCE AND OPPRESSION

MODERATOR: GUILLERMINA SERI

1:50 P.M. // JACKSON SANDERS

Modern Day Slavery: An Analysis of How and Why the Universally Outlawed Practice Still Exists, if not Thrives

2:10 P.M. // DANIEL GOTTLIEB

Assessing the Cultural, Political and Economic Determinants of Terrorism

2:30 P.M. // EMILY EHRLICH

Modeling the Relationships Among Adverse Childhood Events, Intimate Partner Violence and Body Esteem

2:50 P.M. // SULEYDI BETANCOURT

The Unheard Voices: A Content Analysis of Male Victim Narratives from an Online Forum

KARP 004

CHILDHOOD AND EDUCATION

MODERATOR: CATHERINE WALKER

1:50 P.M. // SARAH GOTTLIEB

Early Education Spending on Children Under Five: An Analysis of Influential Political and Economic Factors

2:10 P.M. // RYAN SCHAENMAN

The Effect of Family Structure in Adolescence on Adulthood Education, Earnings and Employment

2:30 P.M. // MICHAEL STALTERI

The Correlation Between Avoidant and Restrictive Feeding Intake Behaviors and Autism Spectrum Diagnostic Criteria of Children Based on Parent Report

2:50 P.M. // KWOK CHUN WONG

Politics and Storytelling: Chinese Primary School Textbooks, 1950 to the Present

SESSION IV

1:50 – 3:30 P.M. ● CONCURRENT ORAL PRESENTATIONS

KARP 008

ENGLISH HONORS THESIS II

MODERATOR: JENELLE TROXELL

1:50 P.M. // KELSEY HARTSOE

Mirror in Disguise: An Exploration of Conflicts Between Desire and Performance and the Abstract and Reality Through Encounters with Simone de Beauvoir, Hannah Arendt, Jacques Lacan and Michel Foucault

2:10 P.M. // DEANNA SINTAY

Sister Nature: Ecofeminism in the Works of Margaret Atwood and Ursula Le Guin

2:30 P.M. // LIZA WOLF

The Scorned Woman: Ancient and Modern

2:50 P.M. // JANA E NIETO

Aphasia and Stutter Therapy: An Ailment Not to be Treated

KARP 105

BIOENGINEERING

MODERATOR: TAKASHI BUMA

1:50 P.M. // WILLIAM BROWN

Neurobox: A Battery Operated, Portable Recording Setup for Electrophysiology

2:10 P.M. // MATTHEW CAULFIELD

Optical Coherence Microscopy and 3D Visualization

2:30 P.M. // ANDREA HUEY

Designing a Low-Cost Ultrasound Pulser

2:50 P.M. // OWEN COREY

Cryopreservation of Human Mesenchymal Stem Cells in Covalently Crosslinked Polymeric Hydrogels

LIPPMAN 012

THE BISALPUR WATER PROJECT IN RURAL RAJASTHAN

MODERATOR: JEFFREY WITSOE

1:50 P.M. // JULIA BEEKMAN

India's Drinking Water Crisis

2:10 P.M. // HARRIS BEEMAN

The Bisalpur Water Project

2:30 P.M. // HANNAH JOSOVITZ, MITCHELL KABAKOW

Broken Faucets, Broken Promises in Radoli Village, Rajasthan

2:50 P.M. // KATHARINE BEAL, ALLISON REMMELL

Survey Results from Radoli Village, Rajasthan

3:10 P.M. // HANNAH JOSOVITZ

Methods for Teaching Disadvantaged Youth in Jaipur, India

LIPPMAN 014

ELECTIONS IN THE U.S.

MODERATOR: ZOE OXLEY

1:50 P.M. // NICHOLAS MEIXSELL

Publicly Financed Elections

2:10 P.M. // CHRISTINA CRAIG

The Role of Regional Identities on Depolarizing Partisans

2:30 P.M. // SARAH KAPLAN

A Cross County Examination of Fiscal Federalism in the 2016 Election

2:50 P.M. // MARGARET MCCORMICK

Representational Style and Congressional Elections: New York's 19th District in the 115th Congress

3:10 P.M. // EMILY BOBRUFF

The 2018 Midterm Elections: Gender, Media Representation and Campaign Strategies

SESSION IV

1:50 – 3:30 P.M. ● CONCURRENT ORAL PRESENTATIONS

LIPPMAN 016

TECHNOLOGY AND THE HUMAN CONDITION

MODERATOR: LORRAINE COX

1:50 P.M. // AVA RUSSELL

The Impact of the Neanderthal Genome on Understanding Human Evolution

2:10 P.M. // SOPHIA GEBARA

Virtual Reality-altered States and the Human Condition

2:30 P.M. // THOMAS BLEASE

Calculating the Efficacy of Contemporary Cyberlaw

2:50 P.M. // KATIE CASADO

Online Terrorism and the Advent of the Online State

3:10 P.M. // ALEXANDER TELLIDES

The Implications of Artificial Intelligence on Society & Modern Ethics

LIPPMAN 017

SCHENECTADY AND UNION

MODERATOR: KENNETH ASLAKSON

1:50 P.M. // ANTHONY BOONE

"We Very Much are Looking for a New Ethnic Group": The Legacy of the African Diaspora in Schenectady

2:10 P.M. // EMILY COELLO

Uncovering an Institutional History: Rev. Lewis Lockwood, Eliphalet Nott and Union College's Involvement in the Advancement of 19th-century African-Americans

2:30 P.M. // CAMERON DREHER

A Sociological Examination of First Year Residence Life at Union College (NY)

2:50 P.M. // DALILA HADEN

The Effect of Higher Education on Adolescent Intersectional Identity Formation

3:10 P.M. // SOPHIA LANGNER

Masculine Identity and Campus Life

OLIN 106

GREEN ENERGY

MODERATOR: RICHARD WILK

1:50 P.M. // CHRISTOPHER WILK

Energy Modeling of Ainlay Hall

2:10 P.M. // ANDREW WOJTOWICZ, ZACHARY NISLICK

Design of a Density-Driven Solar Thermal Water Pasteurization System

2:30 P.M. // SUNAN SUN

Testing and Evaluation of Various Solar Energy Applications

2:50 P.M. // DAVID KOVAL

Design Optimization of a Multi-Energy Storage System for Electric Vehicles

3:10 P.M. // PHILLIP PANICI

Is the Use of Fossil Fuels for Electricity Generation Declining as Renewables Become More Popular?

S&E N205

SUSTAINABLE MATERIALS

MODERATOR: J. STEPHEN HORTON

1:50 P.M. // NICHOLAS GARCIA

Extending an Open Source Transcriptome Analysis Tool for Application to Fungal Biomaterials

2:10 P.M. // ANNA HAROOTUNIAN

CRISPR Editing of the Gene FST4 in an Industrial Fungus Used in Commercial Biomaterials

2:30 P.M. // SARAH SUBIK

Bamboo: A More Sustainable Alternative to Downhill Ski Core Materials

2:50 P.M. // BRIAN HARKNESS

Natural Composite Beam Design and Construction for 2019 SAMPE Bridge Contest

SESSION IV

1:50 – 3:30 P.M. ● CONCURRENT ORAL PRESENTATIONS

WOLD 128

INNOVATIVE DESIGNS

MODERATOR: BRAD BRUNO

1:50 P.M. // TAYLOR COBB, SAMUEL KUPIEC, JACOB PESSIN

Union College Aero Team: Conquering Challenges of Autonomy and Carbon Fiber Construction

2:10 P.M. // JIASEN ZHENG

Design and Performance Study of a Permanent-Magnet Rotary Refrigerator Demo

2:30 P.M. // BRIAN ZICK

Remote Desktop Power Switch

2:50 P.M. // PYAE SONE AUNG

Open Source Mobility Device for Children with Disabilities

WOLD 225

BIOCHEMISTRY

MODERATOR: KRISTIN FOX

1:50 P.M. // LE MINH NGUYEN

Enzyme Kinetic Characterization and Substrate Specificity of Schizophyllum Commune Metacaspases

2:10 P.M. // CHARLOTTE MINEO

Using Low and High Affinity Calcium Binding Site Mutants to Gain Insights into the Calcium-Dependent Activation of Metacaspase 1 From Schizophyllum Commune

2:30 P.M. // BRIANNA CUMMINGS

Auto-proteolysis of Type 1 Metacaspases in Schizophyllum Commune

2:50 P.M. // MAXIMILLIAN TAM

Synthesis of Metacaspase Inhibitors

3:10 P.M. // ALEXA CARUSO

Impact of Single Nucleotide Polymorphisms on HPA-Axis Functionality in Depression

3:30 P.M. // MARGOT O'BRIEN

Impact of Single Nucleotide Polymorphisms in HPA Axis Functionality in Obese Population



SESSION V

3:40 – 5:00 P.M. ● CONCURRENT ORAL PRESENTATIONS

KARP 002

MEDIA AND THE SHAPING OF OPINION

MODERATOR: SUZANNE BENACK

3:40 P.M. // GEORGIA GARDNER

Have Scripts for Initiation of Adult Sexual Behavior Changed in 80 Years? Evidence from Top Box-Office Films

4 P.M. // ANNIKA MORRILL

Weegee the Famous: The Making of Myth in the Time of Murder Inc.

4:20 P.M. // SCOTT HOJLO

Nike's 30th Edition "Just Do It" Advertisement Featuring Kaepernick: Making Sense of the Unique Financial Reaction Through Behavioral Economics

4:40 P.M. // MAYA NEWELL

#JUUL: Social Media and the Making of a Moral Panic

KARP 005

EVOLUTIONARY BIOLOGY

MODERATOR: ROMAN YUKILEVICH

3:40 P.M. // DAVID LOVE

Searching for the Operating Model of Sexual Selection in *Drosophila athabasca*

4 P.M. // JAMES LAGRAFF

Experimentally-Imposed Evolution of *Drosophila athabasca*

4:20 P.M. // HANNA WHITEHOUSE

Diplostomum spathaceum Effects on Fish Behavior: Adaptive or Pathogenic?

KARP 008

CLASSICS

MODERATOR: MARK TOHER

3:40 P.M. // KATHRYN RITER

Aristophanic Comedies: Creating Social Bonds with Humor

4 P.M. // DEVLIN DALEY

Understanding the Lived Experience of Ancient Roman Gardens

4:20 P.M. // MITCHELL TOOLAN

An Exploration of Latin Color Terms in Vergil's Aeneid 1-6

KARP 105

CELLS

MODERATOR: LAURIE TYLER

3:40 P.M. // KELSEY MASSELLI

Development of Metal Containing Anticancer Drugs Through Investigation of their Topoisomerase Inhibition

4 P.M. // COLLEEN MORAN

Flow Cytometry Analysis of Anastasis in Cultured Mammalian Lymphocytes

4:20 P.M. // HALLE NAGORSKY

Intracellular Abnormalities in Human Infantile Neuronal Ceroid Lipofuscinosis Patient Cells



SESSION V

3:40 – 5:00 P.M. ● CONCURRENT ORAL PRESENTATIONS

LIPPMAN 014

INTERNATIONAL RELATIONS

MODERATOR: CIGDEM CIDAM

3:40 P.M. // ALEXANDER ELLENTHAL

Analyzing the German-Soviet Relationship Between 1918-1941

4 P.M. // VICTORIA CARTER

Hope for Another Humanitarian Intervention? Rwanda, Kosovo, Libya and the Consequences of the Responsibility to Protect (R2P) on Myanmar

4:20 P.M. // ALASTAIR ALLEN

Saudi Arabia and Iran: An Analysis of the Current Conflict from the Constructivist Perspective

4:40 P.M. // KATYA WELCH

Are Sanctions Effective? A Case Study of United States Sanctions Imposed on the Russian Federation

OLIN 106

COMPUTER SCIENCE

MODERATOR: MATTHEW ANDERSON

3:40 P.M. // JACOB KARAU

Motion Capture Enabled Research at Union College

4 P.M. // IAN SCILIPOTI

A Virtual Reality Interface for Interactive Terrain Modeling

4:20 P.M. // RIANNA QUIOGUE

Preventing Browser Fingerprinting by Randomizing Chromium Browser Attributes

OLIN 306

WATER AND THE ENVIRONMENT

MODERATOR: MASON STAHL

3:40 P.M. // CONNOR HORAN

Characterizing the Waters of Six Rivers in Upstate New York with a Focus on Hydrologic Controls on Water Quality

4 P.M. // JACK WASSIK

Connecting the Age and Fraction of Riverine Labile Organic Carbon to Watershed Geology and Land Use

4:20 P.M. // SOPHIA BUTE

Union College Water Initiative: Helping Educate the Public About the Quality of Their Drinking Water

4:40 P.M. // PAIGE WEBSTER

Politically-Made Disasters: An Analysis of Three Water Crises in the United States

S&E N205

BIOMECHANICS

MODERATOR: RONALD BUCINELL

3:40 P.M. // HUNTER CONSTABLE

Evaluation of Intervertebral Disc Generation and Recovery

4 P.M. // ARDEN KELLNER

The Benefits and Drawbacks of Barefoot Running

4:20 P.M. // TERRY YE

Investigating Material Characterization on Achilles Tendon With and Without Treatment

S&E N304

PHYSICS AND ASTRONOMY

MODERATOR: SAMUEL AMANUEL

3:40 P.M. // AIYANA POULIN

Automated Surface Photometry of Galaxies in Groups

SESSION V

3:40 – 5:00 P.M. ● CONCURRENT ORAL PRESENTATIONS

4 P.M. // CAMERON YANG

The Particle-Particle Particle Mesh Method for Magnetic Dipoles

4:20 P.M. // THOMAS GAGLIARDI

Coffee Chemistry: Monitoring and Analyzing the Degradation of 5-Caffeoylquinic Acid During Roasting

WORLD 128

DRONES

MODERATOR: JOHN SPINELLI

3:40 P.M. // BLAIR HAGEN

Using a Drone as an Antenna Relay for Obstructed Ground Stations

4 P.M. // DAVID MORLEY

Design and Implementation of Telemetry and Autonomous Control Systems for Two Remotely Controlled Aircraft

4:20 P.M. // WENHAO YANG, ANTHONY YANG XU

Gesture Control Quadcopter

4:40 P.M. // WENHAO YANG

Gesture Controlled Quadcopter System

WORLD 225

ENVIRONMENTAL CHEMISTRY

MODERATOR: LAURA MACMANUS-SPENCER

4 P.M. // STEPHANIE KEARING

Investigation of the Photolysis of the Common UV Filter Chemical Octyl Dimethyl Para-Amino Benzoic Acid and Its Photoproducts

4:20 P.M. // NICOLE DEROSIER

Study of the Photolysis and Cellular Toxicity of the Organic Ultraviolet Filter Chemical 3-(4-Methylbenzylidene) Camphor and Its Photoproducts

4:40 P.M. // MICHAEL ALDOROTY

Analysis of Perfluoroalkyl Acids (Pfaas) in Contaminated Soils from Bennington, VT



STEINMETZ DANCE PERFORMANCE

FRIDAY, MAY 10 ● 4 P.M ● NOTT MEMORIAL

The 2019 Lothridge Festival of Dance

FACULTY SPONSOR / DIRECTOR OF DANCE: MIRYAM MOUTILLET

Faculty Choreography and Guest Artists

DARA DEWI

CHOREOGRAPHED BY KADEK DEWI ARYANI

DANCE BROUGHT BACK FROM THE BALI MINI-TERM

RESILIENCE

CHOREOGRAPHED BY MIRYAM MOUTILLET

MUSIC BY ORANGE BLOSSOM

Emily Alston, Sydney DeCesare, Emma Kelly, Arielle Lawton, Rebekah Lindsey, Alex Merrill, Mary Melo and Michela Michielli

DISQUIET

CHOREOGRAPHED BY LAURIE ZABELE CAWLEY

MUSIC BY MAX RICHTER /VIVALDI

Emily Alston, Leigh Cavanaugh, Alex Kucinski, Emma Kelly, Arielle Lawton, Mary Melo, Danielle Pinney, Abby Polott, Portia Taylor and Shannon West

MOTHER

CHOREOGRAPHED BY ERIC HATCH

MUSIC BY RUPAUL

Yesenia Negrón and Portia Taylor

THE DANCE EXPERIENCE

CHOREOGRAPHY BY JOAN KILGORE ANDERSON

Leigh Cavanaugh, Savannah Jelks, Emma Kelly, Lilly Kurker, Mary Melo, Michela Michielli and Florainne Walcott-Taylor

Student Choreography

COIN TOSS

CHOREOGRAPHED BY SYDNEY DECESARE

MUSIC BY ANDY IORIO

Leigh Cavanaugh, Madalyn Engvold, Sydney DeCesare, Portia Taylor and Shannon West

EVOLVING

CHOREOGRAPHED AND DANCED BY EMILY ALSTON, SHYAN BROWN, CARLY CHERCHES, SYDNEY DECESARE, PORTIA TAYLOR AND SHANNON WEST

MUSIC BY BEN PLATT

THE REAL WORLD

CHOREOGRAPHED BY EMILY RASMUSSEN

MUSIC BY LUNCHMONEY LEWIS

China Campagnuolo, Leigh Cavanaugh, Rachel Eisenberg, Alex Kucinski, Lilly Kurker, Emily Rasmussen, Dami Oluwadara and Juls Sweet

ABOUT-FACE

CHOREOGRAPHED BY EMILY ALSTON

MUSIC BY APHEX TWIN

Emily Alston, Shyan Brown, Leigh Cavanaugh, Meesha Gupta, Emma Kelly, Mary Melo, Felika Poblach, Virali Shah and Larissa Umulinga

MANMOHINI

PERFORMED BY SHREYA SRIVASTAVA

MUSIC BY AR RAHMAN

PLEASE NOTE: For safety reasons, the audience capacity of the Nott Memorial is limited, and space is available on a first-come, first-served basis. Overflow seating will be available in Reamer Campus Center auditorium, where the performance may be viewed on streaming video. The order of pieces is subject to change and will be available in programs distributed at the performance.

STEINMETZ DANCE PERFORMANCE

FRIDAY, MAY 10 ● 4 P.M ● NOTT MEMORIAL



Student Dance Clubs

AFRICAN DANCE CLUB *The Sounds of Africa*

CHOREOGRAPHED BY MARILE NORBURN AND OUMOU ZAKARIA

MUSIC BY BALAYA, GBONA AND OVA

Jocelyne Akamaliza, Jossara Dos Santos Dias, Melisa Depina, Dessources Domond, Adenike Hickson, Marile Norbrun, Emmanuella Oppong and Oumou Zakaria

BHANGRA UNION *Bhangra Blowout*

CHOREOGRAPHED BY DANIELLE GREGG, KAYLYN HUNG, DRISHTI PATEL, ALAN PERROTTI, VIRALI SHAH

Elina Dave, Christie Dionisos, Rachel Eisenberg, Danielle Gregg, Komal Hombal, Kaylyn Hung, Savannah Jelks, Dhea Kothari, Eeshan Kumar, Maha Mian, Bonnie Moon, Aneri Patel, Dhruv Patel, Drishti Patel, Alan Perrotti, Ruchi Raval, Sapan Shah, Virali Shah, Dhara Shukla, Devneet Singh, Dharshini Suresh, Tiffany Vembenil, Mia Villeneuve and Arjun Wali

HIP-HOP CLUB

CHOREOGRAPHED BY CHINA CAMPAGNUOLO, CHRISTIE DIONISOS AND MAHA MIAN

MUSIC BY ARIANA GRANDE, BLUE FACE, JAY PARK

Hayley Bennett, Athena Bo, China Campagnuolo, Christie Dionisos, Hannah Ellen, Taylor Frieling, Julia Greene, Lilly Kurker, Rebecca Lippitt, Maha Mian, Danielle Pinney, Abby Polott, Virali Shah and Portia Taylor

IN-UNISON STEP TEAM

CHOREOGRAPHED BY FELIKA POBLAH AND CORRINE JEAN-GILLES

LATINX DANCE CLUB *Amor y ritmo*

CHOREOGRAPHED BY CYNTHIA PAZ AND BONELYN DE LOS SANTOS

MUSIC BY PRINCE ROYCE & MARC ANTHONY AND LOS HERMANOS

Gianna Morton, Cynthia Paz, Bonelyn De Los Santos, Edwin Palma Solis, Aleks Szumilo and Leanne Torres

UNION K-POP

CHOREOGRAPHED BY LIA KIM, KYLE HANAGAMI, JIN STAR, KEONE MADRID

MUSIC MIX BY TWICE, RED VELVET, PENTAGON, MOMOLAND, CLC, BTS

Emily Alston, Meichai Chen, Yixin He, Sophie Hurwitz, Maha Mian, Juliet Park, Portia Taylor and Mushan Zhong

UNION COLLEGE DANCE TEAM

CHOREOGRAPHED BY CARLY CHERCHES, DANIELLE PINNEY AND SHANNON WEST

MUSIC BY OLLY MURS

Kathryn Bangser, China Campagnuolo, Carly Cherches, Leigh Cavanaugh, Sydney DeCesare, Isabella Demyan, Julia Greene, Alex Kucinski, Lilly Kurker, Mary Melo, McKenna Palczak, Danielle Pinney, Abby Polott, Emily Rasmussen, Julia Waszak and Shannon West

FOR THIS PERFORMANCE WE WOULD LIKE TO THANK:

SPONSORS

Mrs. Joan and Mr. David L. Henle
William E. and Anna S. Lothridge 1879 Fund
Charles D. Lothridge '44 / Edward Vilella Fellowship
The Stephanie C. Davis Dance Residency
The Gail and Carl George Annual Fund
The Joan Gould Scholarship

FACULTY AND STAFF

Laurie Zabele Cawley / Coordinator of the Dance Program
Eric Hatch / Hip Hop Dance Adjunct
Robert Bovard / Technical Director
Brittney Belz / Costume Coordinator
Andy Iorio / Musical Director-Audio Editor
Ryota Matsue / Photographer-Filmmaker
Lee Walis / Learning Environments Services—Live Streaming
Victoria Rotondi / Theater and Dance Administrator
Isabella Demyan, Jana Davis and Shannon West / Work Study

STEINMETZ CONCERT 2019



FRIDAY, MAY 10 ● 8 P.M. ● MEMORIAL CHAPEL

Union College Chorale and **Union College & Community Orchestra**

MUSIC DIRECTOR: CONRAD CHU

Program

UNION COLLEGE & COMMUNITY ORCHESTRA

AN OUTDOOR OVERTURE

Aaron Copland (1900-1990)

UNION COLLEGE CHORALE

MADRIGAL, 'APRIL IS IN MY MISTRESS' FACE'

Thomas Morley (c. 1558-1602)

'THE SPRING TIME OF THE YEAR' FROM FIVE ENGLISH FOLK SONGS

Ralph Vaughan Williams (1872-1958)

'THE LOBSTER QUADRILLE' FROM LEWIS CARROLL'S ALICE IN WONDERLAND

Irving Fine (1914-1962)

UNION COLLEGE CHORALE AND UNION COLLEGE & COMMUNITY ORCHESTRA

PSALM 104 FOR MIXED CHOIR AND CHAMBER ORCHESTRA

Hilary Tann, John Howard Payne Professor of Music

UNION COLLEGE & COMMUNITY ORCHESTRA

SYMPHONY NO. 6 IN F MAJOR, OP. 68 "PASTORAL SYMPHONY"

I. ALLEGRO MA NON TROPPO (AWAKENING OF CHEERFUL FEELINGS ON ARRIVAL IN THE COUNTRYSIDE)

II. ANDANTE MOLTO MOSSO (SCENE BY THE BROOK)

III. ALLEGRO (MERRY GATHERING OF COUNTRY FOLK)

IV. ALLEGRO (THUNDER, STORM)

V. ALLEGRETTO (CHEERFUL AND THANKFUL FEELINGS AFTER THE STORM)

Ludwig van Beethoven (1770-1827)

Union College & Community Orchestra

VIOLIN I

Heather Chan, *Concertmaster*

Kartik Nath

Dalila Haden

Celia Murray

Bob Brannon

Virginia Boyle Traver

Jennifer Cornell

Ann K. Seidman

VIOLIN II

Daniel Knorr, *Principal*

Anna Benninger

Gabrielle Beauregard

Cheryl Szczepkowski

David Wilkinson

Carol Blom

VIOLAS

Andrew Snow, *Principal*

Carol Ball

Edith Kliman

Pui Yee Hung

Stephanie Dosiek

Amy Clodgo

CELLOS

André O'Neil, *Principal*

Soroush Saririan

David Gordis

Joann Bonafede

DOUBLE BASSES

Qiushi Yao, *Principal*

Timothy Maines

Tara Kristensen

FLUTES

Elizabeth Day, *Principal*

Beth Devlin (+ *Piccolo*)

OBOES

Diane Baltazar, *Principal*

Hanna Birkhead

CLARINETS

Leo Minami, *Principal*

Christos Kakogiannis

Kathryn Brannon

BASSOONS

Jennifer Fullam

Laura Canham-Lunde

HORNS

James Henry Scott,

Principal

Gus Birkhead

Josef Schmee

Charles Thompson

TRUMPETS

Nicholas Meixsell,

Principal

Daniel Toland

TROMBONES

Robert Reifsnnyder,

Principal

Brock Mendoza

TIMPANI & PERCUSSION

Michael Yuzynko

STEINMETZ CONCERT 2019

SATURDAY, MAY 11 ● 2 P.M
EMERSON AUDITORIUM, TAYLOR MUSIC CENTER

Union College Jazz Ensemble
MUSIC DIRECTOR: PROFESSOR TIM OLSEN



Union College Chorale

SOPRANOS

Madison Corcoran
Zihe Li
Yizhi Lin
Giselle Perkowski
Qiyue Zhang

ALTOS

Alison Goldbetter
Lydia Hursh
Jessica Matli
Emma Moger
Hope Noonan-Stoner

TENORS

Emmanuel Bakou
Nathan Gillespie
Raphael Kummer-Landau

BASSES

Maxwell Fineberg
Noah Lehman-Borer

Program

BASIE STRAIGHT AHEAD

Sammy Nestico

SALT PEANUTS

Gillespie/Clarke

MINNIE THE MOOCHER

Calloway/Mills

HEMAYOUN

Amir ElSaffar

SIMPLICIDAD

Tim Olsen

MY WAY

François/Revaux/Anka

THAT'S LIFE

Kay/Gordon

TRUTH

Kamasi Washington

ALTO SAX

Ally Atkins
Ethan Lampert

TENOR SAX

Andrew Elliott
Jonathan Fields

TRUMPET

Ryan Bosanko
Nick Meixsell
Dan Toland

TROMBONE

Scott Koszer

PIANO

Zach Pine Maher

GUITAR

Arden Kellner

BASS

John Hursh
Khoa Tran

DRUMSET/PERCUSSION

Matt Cole
Andrew Giordano

VOCALS

Sam Riordan

NOTES



2

1

3

4

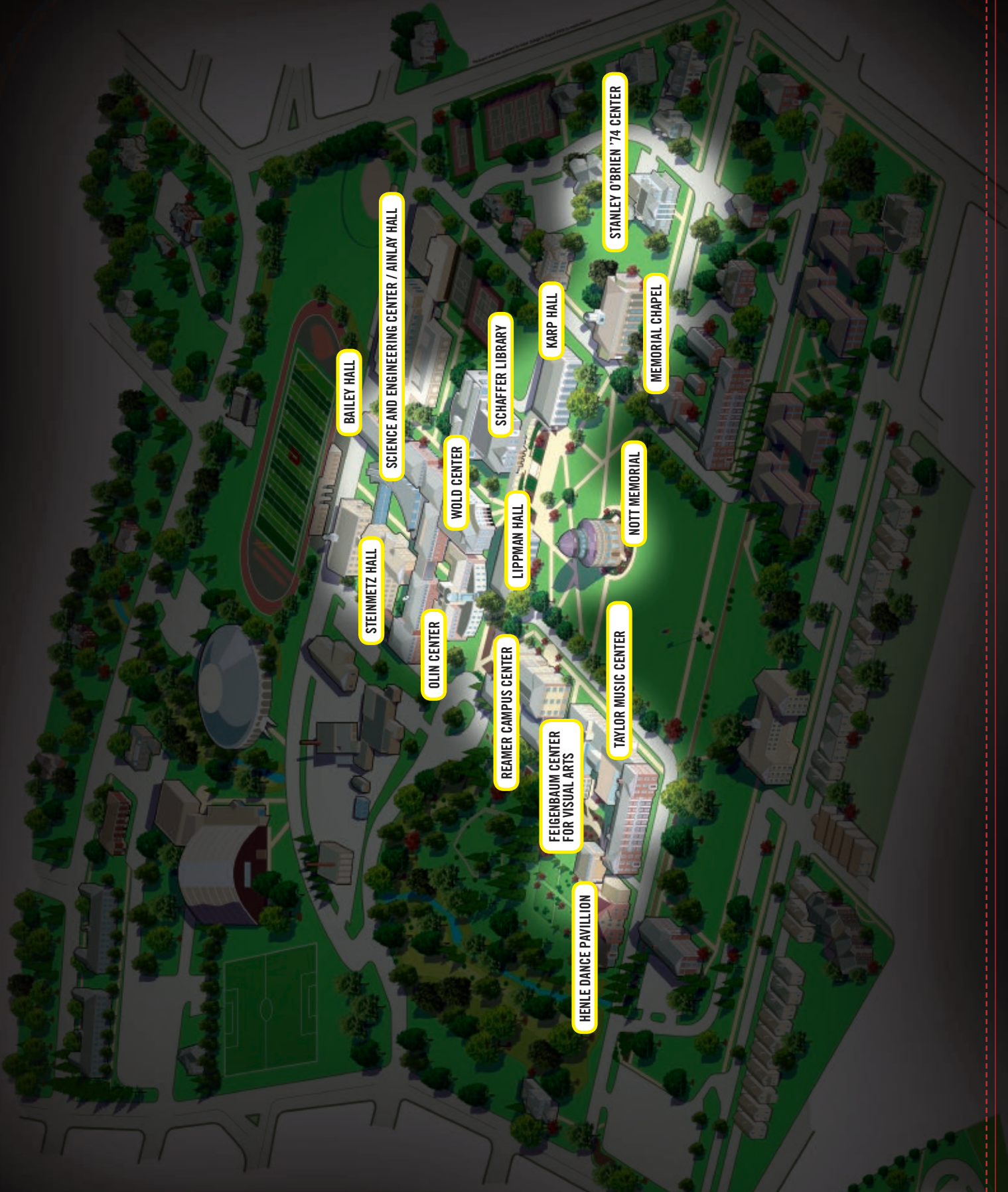
5

6

7

8

9



BAILEY HALL

SCIENCE AND ENGINEERING CENTER / AINLAY HALL

STEINMETZ HALL

OLIN CENTER

WOLD CENTER

SCHAFFER LIBRARY

LIPPMAN HALL

REAMER CAMPUS CENTER

FEIGENBAUM CENTER FOR VISUAL ARTS

HENLE DANCE PAVILLION

KARP HALL

STANLEY O'BRIEN '74 CENTER

MEMORIAL CHAPEL

NOTT MEMORIAL

TAYLOR MUSIC CENTER

UNION COLLEGE 807 UNION STREET, SCHENECTADY, NY 12308

UNION
COLLEGE
FOUNDED 1795