UNION COLLEGE 807 UNION STREET, SCHENECTADY, NY 12308

THE CHARLES PROTEUS STEINMETZ SYMPOSIUM

5.12.17

WESTCHESTER COUNTY BAR ASSOCIATION

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GET PUBLISHED!
The Westchester Lawyer magazine is always looking for articles of interest to our members. We are interested in articles that are newsworthy and informative, such as descriptions of important developments in, or unique perspectives on, areas of the law. Submissions should be 600-1200 words and preferably an original article that has not been published elsewhere.

Please submit articles to editor@wcbany.org.

THE WESTCHESTER COUNTY BAR ASSOCIATION'S MONTHLY MAGAZINE

AUGUST 2015 | VOL. 2 | NO. 8

LAWYER westchester

WCBA

WESTCHESTER COUNTY BAR ASSOCIATION

Protecting Confidential HIV Related Medical Records in the Discovery Process: p. 6

UPCOMING EVENTS

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Meet the Judges: p. 1

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HIGHLIGHTS . . .

WCBA's Lawyer Referral Service Can Help Your Business Grow: p. 5

Golf Outing Report & Photos: pp. 14-17

CLE Center: p. 24 . . . and much more

Printed by Fort Orange Press, Albany, NY, on FSC certified paper with soy based inks.
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 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 for the past 26 years has integrated 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.
SCHEDULE OF EVENTS

FRIDAY, MAY 12:
STEINMETZ SYMPOSIUM

9 A.M. – 5 P.M.

THE CHARLES PROTEUS STEINMETZ SYMPOSIUM
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.

STUDENT PRESENTATION SESSIONS BEGIN AT 9 A.M.

5 – 6:30 P.M.

STEINMETZ SYMPOSIUM RECEPTION
Cash bar and light refreshments.
For presenters, their parents, alumni, guests and faculty sponsors.
LALLY READING ROOM, SCHAFFER LIBRARY

A selection of posters presented by student researchers at national professional society meetings during the 2016-2017 academic year will be posted outside of the Lally Reading Room.

8 P.M.

THE UNION COLLEGE CHOIR
THE UNION COLLEGE AND COMMUNITY ORCHESTRA
MEMORIAL CHAPEL

SATURDAY, MAY 13:
PRIZE DAY

11 A.M. – NOON

PRESENTATION OF PRIZES AND RECOGNITION
MEMORIAL CHAPEL

IMMEDIATELY FOLLOWING

PRIZE DAY RECEPTION
REAMER CAMPUS CENTER PATIO

2 P.M.

UNION COLLEGE JAZZ ENSEMBLE
EMERSON AUDITORIUM, TAYLOR MUSIC CENTER
**Friday, May 12**

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**Saturday, May 13**

| UNION COLLEGE JAZZ ENSEMBLE | 2 P.M. |

**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 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.

**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

**SCHAFFER LIBRARY WILL BE OPEN:**
- Friday, 8 A.M. – midnight
- Saturday, 10 A.M. – midnight
- Sunday, 10 A.M. – 2 A.M.

*A hospitality station serving light snacks and beverages is available in the Schaffer Library.*
ANNUAL STEINMETZ STUDENT ART EXHIBITION 2017

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

This exhibit is free and open to the public. Please see the gallery guide for a complete listing of all exhibitors and works.

The Annual Steinmetz Symposium Visual Arts Student Exhibition will be held in the Crowell and West Galleries in the Feigenbaum Center for Visual Arts. The exhibition concludes on May 14, 2017.

The following students are included in a group exhibit curated by the Visual Arts faculty, which represents outstanding work from 2016-2017 in the media of drawing, painting, printmaking, photography, sculpture, and digital art.

**PRINTMAKING**
- Elizabeth Andonie
- Sarah Chang
- Frank Chiarulli
- Morgan Clark
- Emily Dahlstrom
- Emily Fiore
- Emily Kirsch
- Caroline McGuire
- Samantha Miller
- Lindsey Sepe
- Yuki Shimano
- Nathan Singer
- Andrew Tullo
- Xiaozhi Yang

**PAINTING**
- Hein Htet (Thomas) Aung
- Olivia Estes
- Virginia Goggins
- Abigail Golodik
- Nicole Shauffer
- Nathan Singer
- Yuanqing Zhu
- Kelly Xi

**DRAWING**
- Ari Bennett
- Kwesi Blankson
- Lauren Capron
- Sophie Eydenberg
- Emily Fiore
- Samantha Miller
- Galen Moynihan
- Sophia Potter
- Ian Scilipoti

**PHOTOGRAPHY**
- Frank Chiarulli
- Rachel Clement
- Matt Coffin
- Julia Delaney
- Emma Hart
- Audrey Hunt
- Kevin Jordan
- Rachel Meyers
- Samantha Miller
- Laura Mueller
- Carlos Piedad
- Amy Provost
- Hadley Richards
- Sophie Rosen
- Lindsey Sepe

**DIGITAL ART**
- Ryann Shadick
- Davina Tran
- Lili Wang
- Gangliang Zhao

**SCULPTURE/3D DESIGN**
- Michael Adams
- Noemie Bechu
- Brendan Cheevers
- Lauren Elder
- William Enberg
- Virginia Goggins
- Kevin Jordan
- Claire Lockwood
- Rachel Meyers
- Samantha Miller
- Joseph Noonan
- Gabrielle Polott
- Valerie Purcell
- Nathan Singer
- Devon Webster
- Niuniu Zhang
- Yizhou Zhuang

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SESSION I

9 –10:20 A.M.  ■ CONCURRENT ORAL PRESENTATIONS

KARP 002

ANTHROPOLOGY I

MODERATOR: MICHELLE OSBORN

9 A.M. // OLIVIA WATMAN
Navigating Real Gluten Free: An Analysis of the Experience of Non-Celiac Gluten Sensitivity (NCGS)

9:20 A.M. // ASTRID VARGAS
Examining the Structural Forces behind “Natural” Disasters: A Louisiana Case Study

9:40 A.M. // KERIANN MACKEY
The Stigma of Opioid Addiction

KARP 005

BIOCHEMISTRY I

Moderator: Nicole Theodosiou

9 A.M. // JUSTIN FLEISCHER
Mutation of Follicle Stimulating Hormone Receptor Putative Caveolin Binding Motif Results in Altered Signaling

9:20 A.M. // SAMANTHA FRYE
Gene Expression in the Development of the Little Skate, Leucoraja erinacea

9:40 A.M. // GREGORY GEISEL
Quantification of hFSHR Signaling to Determine Dependence of Lipid Raft Residency

WOLD 128

COMPUTER SCIENCE

MODERATOR: KRISTINA STRIEGNITZ

9 A.M. // FRANK CHIARULLI
Controlling 3D Printers with Artificial Neural Networks

9:20 A.M. // JOHN PETERSON
Measuring the Complexity of ANN-produced Evolutionary Designs

9:40 A.M. // JOSHUA WASSERMAN
Accurately Simulating the Battle of Thermopylae to Analyze “What-If” Scenarios

10 A.M. // AKSHAY KASHYAP
Convolutional Neural Networks for User Simulation in Spoken Dialogue Systems

KARP 008

CREATIVE WRITING IN ENGLISH: SHORT STORIES, FILM SCRIPTS, AND CREATIVE-NONFICTIONAL FORMS

MODERATOR: ANDREW BURKETT

9 A.M. // JAMAL ARAM
The Children Who Became Men Overnight: Memories of Love and War in Afghanistan

9:20 A.M. // JUSTIN ZORN
Writing a Modern Cinematic Road Epic

9:40 A.M. // KIMBERLY BOLDUC
A Monumental History: Stories of the Berkshires

LIPPMAN 017

ECONOMICS I

MODERATOR: ELLEN FOSTER

9 A.M. // OLIVIA CIPRIANI
Characterizing Past and Future Trends in the Workplace: An Analysis

9:20 A.M. // IAN ZANGRILLO
The Effects of Oil Price Shocks on the Stock Market Returns in Developed Economies

9:40 A.M. // BRIAN TEITELBAUM
The Impact of History on Trade Flows: A Gravity Model Approach on Trade of the States of Former Austria-Hungary

10 A.M. // EMILY JANNERY
The Pink Tax: Is it a Big Issue?
SESSION I

9 –10:20 A.M.  ▬ CONCURRENT ORAL PRESENTATIONS

WOLD 225

ENVIRONMENTAL POLICY: LAND USE OR CONSERVATION
MODERATOR: ANDREW MORRIS

9 A.M.  // ANDY ZOU
Assessing the Objectives of Great Society Federalism in Outdoor Recreation Policy: 50 Years of the Land and Water Conservation Fund

9:20 A.M.  // CHRISTY BROWN
Private Development in the Adirondack State Park and the Role of the Adirondack Park Agency

9:40 A.M.  // SARA HALSEY
“Sight is a Faculty; Seeing, an Art”: George Perkins Marsh, the Classical Environment and 19th-Century Conservation Policy

OLIN 306

GEOLOGY I: POLLUTION AND WATER CONTAMINATION
Moderator: Anouk Verheyden-Gillikin

9 A.M.  // CAROLYNN CONNORS
Impacts of Urbanization on Stream Water Biogeochemistry in Schenectady, N.Y.

9:20 A.M.  // ALICE HAYDEN
Temporal and Spatial Variability of Perfluorooctanoic Acid (PFOA) and Other Related Perfluoroalkyl Acids in Hoosick Falls, NY

9:40 A.M.  // JAKE ULRICH
An Investigation of the Effects of Chain Length and Ionic Head Group on Perfluoroalkyl Acid Binding to Human Serum Albumin

LIPPMAN 012

KLEMM FELLOWS I
MODERATOR: MARK DALLAS

9 A.M.  // MEGHANA DAMARAJU
A Global Perspective: A Look into Sri Lankan Healthcare

9:20 A.M.  // YUAN GAO
A Klemm Fellow Experience: Three Weeks in the Woods of Madagascar

9:40 A.M.  // ZHIXIN KANG
Rethink the Role of Arts and Caring in Strengthening Communities: A Winter Break in Togo, Africa

10 A.M.  // AYANAH DOWDYE
Journey Through Another World: My Cultural Experience In Cape Coast, Ghana

BAILEY 207

MATHEMATICS I
MODERATOR: BRENDA JOHNSON

9 A.M.  // JASON TURNER
Hurricane Links

9:20 A.M.  // OLIVIA RICCI
Symmetry Groups in \( \mathbb{R}^2 \)

9:40 A.M.  // LAUREN SAVRIN
The Math of Music: A Look at Musical Group Theory

10 A.M.  // YUWEI LIU
Application of Group Theory to the PLR-group in Music Theory

SCIENCE AND ENGINEERING N205

MECHANICAL ENGINEERING-DESIGN
MODERATOR: JEREMY VANDEROVER

9 A.M.  // ALEXANDER CHU
Through Yonder Window Breaks: The Rise of JULIET
SESSION I

9 –10:20 A.M. ☐ CONCURRENT ORAL PRESENTATIONS

9:20 A.M. // JOHN COSTA
Liquid Fueled Rocket Engine Design

9:40 A.M. // JEREMY MANUS
Design of a Tick Collecting Robot

10 A.M. // MADELINE SAMUELL
Computational Fluid Dynamic Modeling and Analysis of Small Scale Horizontal Axis Wind Turbines

KARP 004

MODERN LANGUAGES
MODERATOR: ERIKA NELSON MUKHERJEE

9 A.M. // EMILY KERN
Stigma Against Career-Oriented Women Hinders Chinese Economic Growth

9:20 A.M. // ALLISON SCHACHTER
Los Beneficios Económicos de Ofrecer Servicios de Salud en Español

9:40 A.M. // GILLIAN HENRY
Die Märchenmütter—Fairy Tale Mothers

EMERSON AUDITORIUM (TAYLOR MUSIC CENTER)

NEUROSCIENCE, ELECTRICAL ENGINEERING AND MUSIC
MODERATOR: PALMA CATRAVAS

9 A.M. // CHRISTIE DIONISOS AND PAMELA RICE
Tricks of the Mind: The Binaural Observation and Exploration of the Scale Illusion

KARP 105

ORGANISMAL BIOLOGY I
MODERATOR: KATHLEEN LOGIUDICE

9 A.M. // ASHLEY ROSA
Restoring Native Pine Barren Vegetation at the Albany Pine Bush

9:20 A.M. // ANNA DORAN
An Analysis of Restoration Effects on Non-Native Species Invasion Throughout the Albany Pine Bush, New York

9:40 A.M. // NICOLE SHAUFFER
Investigating the Relationship Between Invasive Garlic Mustard, Alliaria petiolata, and Blacklegged Ticks, Ixodes scapularis

KARP 001

PHILOSOPHY
MODERATOR: ROBERT BAKER

9 A.M. // STEPHANIE DIGIORGIO
The Nature of Revenge

9:20 A.M. // BENJAMIN MEGATHLIN
The Ethics of Nanotechnology and the Precautionary Attitude

9:40 A.M. // HARLIE SILVER
Ethical Issues of Parental Vaccine Hesitancy and Resistance to the MMR Vaccine

LIPPMAN 016

POLITICAL SCIENCE I
Moderator: Bradley Hays

9 A.M. // COURTNEY SEGAL
The Aesthetic and the Generation of Partisan Imagery: An Analysis

9:20 A.M. // BENJAMIN FAY
American Patent Law: Liberal and Republican Theories of Governance

9:40 A.M. // ALYSSA BONESTEEL
The Evolution of Women in Intelligence

10 A.M. // BENJAMIN FAY
Technology and Democracy
SESSION I

9 –10:20 A.M. ■ CONCURRENT ORAL PRESENTATIONS

LIPPMAN 014

POLITICAL SCIENCE II
MODERATOR: ZOE OXLEY

9 A.M. // MICHELLE BAKOU
How Modesty Became Political

9:20 A.M. // EMMA STEIN
Television Media Coverage of Presidential Elections

9:40 A.M. // ALEXANDER SPYROPOULOS
An Evaluation of Reforms That Aim to Address Political Polarization

10 A.M. // JACQUELINE ABOULAFIA
What is Holding American Education Back? The Politics of Developing a Public School Curriculum about 9/11 and its Aftermath

LIPPMAN 101

SOCIOLOGY
MODERATOR: JANET GRIGSBY

9 A.M. // ALEX SAKELLAROPULOS
Demographic and Traditional Routes to Play in the National Hockey League

9:20 A.M. // XIAOFEI XIE (CHERYL)
Fair Labor Practices: Are Workers Truly Protected?

9:40 A.M. // ALEXA STERITI
Life Satisfaction, GDP Per Capita and Social Impacts During an Economic Downturn

10 A.M. // MATTHEW WU
The Application of Telemedicine to College Health at a Four-Year University and Community College

REAMER AUDITORIUM (REAMER CAMPUS CENTER)

THEATER DOCUMENTARY
MODERATOR: PATRICIA CULBERT

9 A.M. // CASSANDRA PADILLA
Comparisons and Contrasts Between Theatre and Film Directing
SESSION II

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

KARP 001

ANCIENT GREECE, ANCIENT ROME, AND MODERN ITALY

MODERATOR: STACIE RAUCCI

10:30 A.M. // THOMAS LAWTON
A Study of Demagoguery in Athens and America

10:50 A.M. // KATHRYN EVANS
Economic Rights of Women in Classical Athens

11:10 A.M. // MITCHELL TOOLAN
Painting the Enemy: How Classical Greek Historians Portrayed Military Adversaries

11:30 A.M. // GIANLUCA AVANZATO
A Nation Divided: The Failed Unification of Italy and the Emergence of Italian Orientalism

KARP 002

ANTHROPOLOGY II

MODERATOR: ROBERT SAMET

10:30 A.M. // RACHEL MCDERMOTT
FoMO and The Image of The Self: From College Campuses to Madison Avenue

10:50 A.M. // KATHRYN MARTIN
Youth L.I.F.E. Support Network: An Ethnographic Study of Violence and Crime in the City of Schenectady through the Youth L.I.F.E. Violence Interrupter Organization

11:10 A.M. // ARTHUR SCHUTZBERG
Personalizing Education: How to Examine the Race, Class, and Socio-Economic Disparities in Public Education

WOLD 128

BIOENGINEERING, ELECTRICAL & COMPUTER ENGINEERING

MODERATOR: TAKASHI BUMA

10:30 A.M. // SANG WON CHOI
High Frequency PVDF Transducer for Photoacoustic Microscopy System

10:50 A.M. // TAYLOR ULLRICH
Parking Lot Occupancy Monitor

11:10 A.M. // YAZAN BARHOUSH
Ultrasound Imaging System for Educational Purposes

11:30 A.M. // DAVID FISHMAN
Electronic Dive Mask: A Heads up Display for Deep Diving

11:50 A.M. // SANG WON CHOI
Injection-Seeded Raman Fiber Amplifier for Photoacoustic Microscopy of Lipids

KARP 005

BIOLOGY I

MODERATOR: ROBERT OLBERG

10:30 A.M. // SAMUEL EDDY
Smooth Muscle Differentiation During Spiral Valve Formation in the Skate, L. Erinacea

10:50 A.M. // OLIVIA AITKEN AND LAILA KING
Modifying Biology to Improve Eco-Friendly Biomaterials by Genetic Reprogramming of an Industrial Fungus

11:10 A.M. // NATALIA CIESIERSKA
Eyes in the Back of Their Heads: Investigating Backward-Looking Visual Neurons in the Aeshna Dragonfly

11:30 A.M. // ALEXIS WOJTOWICZ
Cloning and Expression of Cdx2 during Patterning of the Spiral Valve Intestine

11:50 A.M. // ANDREW HAMLIN
Neuronal Response to Object Approach in Dragonflies: The Effect of Stereopsis

LIPPMAN 016

CHEMISTRY

MODERATOR: MORGOT PAULICK

10:30 A.M. // JONI-RAE PARTRIDGE
Harnessing Click Reaction to Synthesize Mechanically Interlocked Cucurbit[n]uril Molecules
SESSION II

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

10:50 A.M. // JOANNA OH
Aggregation in a Water Soluble Luminescent Cyclometalated Platinum (II) Complex: Condition Sensitive Luminescence Enhancement

11:10 A.M. // BRITTANY GAY
Comparative Analysis of Drosophila Athabasca Cuticular Hydrocarbons: Identification, Quantification, and Synthesis

11:30 A.M. // JACK BRAGG
Synthesis and Evaluation of Cell-Permeable Analogs of Trehalose

KARP 008

CRITICAL WRITING IN ENGLISH (I): REPRESENTATIONS OF NATURE FROM AMERICAN TRANSCENDENTALISM TO CONTEMPORARY DYSTOPIAN LITERATURE
MODERATOR: BERNARD KUHN

10:30 A.M. // ROBERT PINKHAM

10:50 A.M. // ELIZABETH HURLEY
Combating Human Extinction: Biblical Archetypes and Environmental Apocalypse in Contemporary Dystopian Fiction

KARP 008

CRITICAL WRITING IN ENGLISH (II): FICTION AND SOCIAL JUSTICE—GENDER, SEXUALITY, AND MARGINALIZED HUMAN IDENTITIES
MODERATOR: JENNIFER MITCHELL

11:10 A.M. // OLIVIA ESTES
The Emergence of Homosexual Stereotypes in the Victorian Gothic Novel

11:30 A.M. // MEGHAN KEATOR
Living within the Margins: The Constitutional Culture of Irish Life, Law, and Literature

11:50 A.M. // CHRISTINA BELFORTI
Reimagining and Unimagining Genre in Helen Oyeyemi’s Fiction

LIPPMAN 017

ECOMONOMICS II
MODERATOR: TOMAS DVORAK

10:30 A.M. // JOHN COSTA, AKSHAY KASHYAP, AND CHRISTOPHER PORAT
Quantitative Finance: Design of an Algorithm to Trade the Stock Market

10:50 A.M. // LAURA MUELLER
Rating College Debt: A Case Study of Union College

11:10 A.M. // KATHRYN DAVIS
Business Plan: Ugly Duckling Pressers

11:30 A.M. // CONNOR JANSON
Tribe: Revolutionizing the Way Millennials Go Out

WOLD 225

ENVIRONMENTAL POLICY: AGRICULTURE
MODERATOR: DOUGLAS KLEIN

10:30 A.M. // KAYLEE WILLIAMS
Community Gardening and Urban Agriculture: An Analysis of Food Growing Organizations in the Capital Region, Portland and Milwaukee

10:50 A.M. // MADELINE LEWIS
The Negative Environmental Consequences of the Animal Agriculture Industry and the U.S. Policies in Place to Protect It
10:30 A.M. – 12:10 P.M.  — CONCURRENT ORAL PRESENTATIONS

KARP 004

FRENCH AND FRANCOPHONE STUDIES: LANGUAGE, GENDER, AND MACHINES: DIALOGUES D’ ESPACES
MODERATOR: CHEIKH NDIAYE

11:10 A.M. // NATALIE SULLIVAN
Is Genetic Modification the Answer?

11:30 A.M. // CALVIN WILES
Industrial Hemp in the United States: History, Production, Market Potential Politics, and Environmental Implications

LIPPMAN 012

HISTORY
MODERATOR: STEVE SARGENT

10:30 A.M. // MEGHAN KEEGAN
“We Poor Devils”: The Interactions, Shared Experiences and Differing Fates of the Cheyenne, Sioux, Buffalo Soldiers and the U.S. Army in a Post Civil War America, 1865-1890

10:50 A.M. // WILLIAM TOMALONIS
Conflict in Syria: Unraveling the Conflict with a Historical Lens

11:10 A.M. // RUILI TANG
Multi-Agent Simulation of the Battle of Ankara, 1402

11:30 A.M. // ALEXANDRA STEED
No One Expects the Spanish Inquisition: Witchcraft Trials in Basque Spain and Southwestern Germany

11:50 A.M. // BRIAN TEITELBAUM
Symbols of a Bourgeois Empire: The Intersection of Class and Government during Paris’s Transformation into a Middle-Class Capital

BAILEY 100

INTERDISCIPLINARY THESES
MODERATOR: AARON CASS

10:30 A.M. // AMANDA PRICE
The Effect of Emotion Regulation on Turnout Rates Among Youth Voters
SESSION II

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

**BAILEY 207**

**MATHEMATICS II**  
**MODERATOR: JUE WANG**

10:30 A.M.  //  KATHERINE MOELLER  
Projective Geometry Yields a New Perspective

10:50 A.M.  //  MELISSA EPSTEIN  
Primes That Factor

11:10 A.M.  //  GRACE KERNOHAN  
Exploring the Three Dimensions of Sustainability in China

11:30 A.M.  //  ARI BENNETT  
How Americans’ Social Attitudes Change As They Age

11:50 A.M.  //  RAQUEL PARAMO  

**NEUROPSYCHOLOGY AND COGNITION**  
**MODERATOR: CAY ANDERSON-HANLEY**

10:30 A.M.  //  MADDISON STEMPLE-PIATT  
A Comparison of Personality Factors and Cognitive Abilities in Offenders and College Students: Offender and Non-Offender Differences in Empathy, Aggression, Impulsivity and Executive Functioning

10:50 A.M.  //  EMILY WEST  
Neuropsychological Test Performance in Pediatric TBI And ADHD: Difference in Reliable Digit Span

11:10 A.M.  //  COURTNEY CROSS  
Theory of Mind in Children and Adolescents on the Autism Spectrum: Comparison with Normative Individuals

11:30 A.M.  //  JESSICA STARK  
Biomarkers and Neuropsychological Change: A Pilot Study of Three Months of the interactive Physical and Cognitive Exercise System (iPACES™) for Older Adults

11:50 A.M.  //  ALEXA SCHILLACI  
Neuropsychological Effects of the Interactive Physical and Cognitive Exercise System (iPACES™) for Older Adults: Executive Function and Mood

**SCIENCE AND ENGINEERING N205**

**NANOTECHNOLOGY**  
**MODERATOR: MICHAEL HAGERMAN**

10:30 A.M.  //  KIMBERLY BOLDUC  
Exploring Low Cost and Water Soluble Routes to Quantum Dot Solar Cells

10:50 A.M.  //  DANIEL JACKSON  
Tailoring of CdSe Nanoparticles for Solar Applications

11:10 A.M.  //  MASON KING  
Ceria Nanoparticles for Sustainable Heavy Metal Water Filtration

11:30 A.M.  //  JEFFREY WILK  
Deposition and Characterization of Hybrid Nanocomposite Films for Orthopaedic Applications

11:50 A.M.  //  ZHIXIN KANG  
Synthesis of Electrically Conductive Polylactic Acid Composites for 3D Printing
SESSION II

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

LIPPMAN 014

POLITICAL SCIENCE AND LATIN AMERICAN STUDIES
MODERATOR: GUILLERMINA SERI

10:30 A.M. // SCOTT ERNENWEIN
The Rise of Private Military Companies and the Decline of State Power

10:50 A.M. // KARL-RAY JEUNE
January 12, 2010 (A Look Into Haitian Politics)

11:10 A.M. // OLIVIA BRITTON
Les Misérable: The Syrian Refugee Crisis and the French’s Response

11:30 A.M. // ANTHONY WRIGHT
The Impact of Guerilla Warfare on Democratic Stability in Latin America

11:50 A.M. // AUBREY GRIFFIN
The Coup d’état of Non-Governmental Organizations in the 21st Century: A Case Study of Development in Siem Reap, Cambodia

LIPPMAN 101

SOCIOLOGY AND AFRICANA STUDIES
MODERATOR: DEIDRE HILL BUTLER

10:30 A.M. // JAMES BASUK
"Will Anyone Help Me?" A Qualitative Study of Sexual Assault Reporting on a Liberal Arts College Campus

10:50 A.M. // LAI WONG
The Unheard Heroes of the Homelessness Issue: Exploring the Perspectives of Social Service Workers

11:10 A.M. // MARLEY WEIG-PICKERING
Uprooting Food Injustice: A Qualitative Analysis of Activist Efforts Combating Food Deserts and Inequality

11:30 A.M. // ANDREW GUYATTE
Afrofuturism: A Journey into Black Space

BAILEY 201

PSYCHOLOGY
MODERATOR: CATHERINE WALKER

10:30 A.M. // KINGSHUK MAZUMDAR
Food Porn and A Snack: Investigating the Effect of Mindset on a Taste Test

10:50 A.M. // ARIELLA HONIG
The Relationship Between Parenting Styles, Children’s Temperaments, and Sibling Relationships: A Look Within Families Who Have A Child With Down Syndrome

11:10 A.M. // JULIA GREENE
Human-Robot Interaction and the Ability of Robots to Engage in Humanlike Relationships

11:30 A.M. // JULIA BROOKS
What Can My Body Do For Me? Seeking to Improve Body-Satisfaction with a Guided Functionality Mirror Exposure

11:50 A.M. // SARAH IRVINE
The Effects of Anxiety and Depression on Self-Defining Memory and Self-Defining Future Projections

KARP 105

SPECIAL TOPICS—PERSPECTIVES ON MEDICINE, TECHNOLOGY, AND WOMEN
MODERATOR: DAVID COTTER

10:30 A.M. // BRIANNA GUTIERREZ
Breaking the Glass Slipper: Analyzing Female Figures’ Roles in Disney Animated Cinema from 1950-2013

10:50 A.M. // ANTONIA BATHA
Make it on Her Own? The Portrayal of Single Women on Television from the 1970s to the 2010s
10:30 A.M. – 12:10 P.M. ▪ CONCURRENT ORAL PRESENTATIONS

11:10 A.M. // CHRISTINA DYKAS
Women’s Health and Alternative Medicine

11:30 A.M. // PATRICK GARDNER
The Factors Affecting Perceptions and Use of Technology

11:50 A.M. // ANASTASIA NETRUNENKO
Narrative Medicine and Patient Satisfaction: A Response to the Disconnect in Communication Between the Medical Community and the General Public

FEIGENBAUM CENTER FOR VISUAL ARTS 204

VISUAL ARTS & ART HISTORY
MODERATOR: SHERI LULLO

10:30 A.M. // AMY PROVOST
Her Story: A Study of Feminism in Folklore

10:50 A.M. // VALERIE PURCELL
The Origin of Man through Prints

11:10 A.M. // YI TING PAUNG
Surrealism: The Art of the Subconscious

11:30 A.M. // JACQUELINE SELTZER
Her Body: Redefining and Reclaiming the Female Form Through Feminist Art

11:50 A.M. // ALLISON SMITH
The Dissemination of Sculpture: Auguste Rodin

OLIN 115

WHAT’S STRESSING YOU OUT?
THE EFFECTS OF CORTISOL AND STRESS
MODERATORS: BRIAN COHEN

10:30 A.M. // BRIANNA GODLEWSKI
The Linkage Between 11β-hydroxysteroid Dehydrogenase Type 1 Enzyme Hyperactivity Polymorphisms & Metabolic Syndrome

10:50 A.M. // JUSTIN SALM
Investigating the Effects of Polymorphisms of the Glucocorticoid Receptor on Obesity and Depression

11:10 A.M. // ANA CARRANCO
Impact of Exercise on Stress Responses in an Undergraduate Student Population

11:30 A.M. // SHIRAZ MUMTAZ
Does Exercise Help Improve Recognition Memory After Stressor Exposure?

11:50 A.M. // JUSTINE MONTTHONY
Fitness and Exercise as Linked to Overall Stress and Physiological Stress Responses
SESSION III

12:20 P.M. – 1:50 P.M.  ❑ POSTER PRESENTATIONS
WOLD CENTER ATRIUM

MODERATORS: ELLEN GASPAROVIC AND LUKE DOSIEK

LISA HLADIK
Audio-Forensic Analysis of Audio Recordings Through Digital Signal Processing

XAVIER QUINN, ALEX PRADHAN, SUNAN SUN, JAMES HOANG
Power Gauntlet

JOSEPH NOONAN
The Analysis and Creation of Composite Body Panels for the SAE Baja Car

JENNIFER NUTTER
Analysis of the Deadlift Exercise in Relation to Swimming Performance

AIYANA POULIN
Star Formation in Abell 779

ANDRES JACOBO
Social Robots: Mimicking Human Behavior During Conversation

KARL-RAY JEUNE
Obenzinger Project: Lack of Minority Physicians

BRIAN CATTAFE
Improving Experimental Techniques for Electron-Positron Annihilation and Compton Scattering Labs

LAUREN O’CONNOR
Photolysis of Organic Ultraviolet Filter Chemicals

BENJAMIN SCHWARTZ
Dynamic Testing of Brushless D.C. Motors for SAE Aero

ANGELINA STEWART, ALICIA CLARKE
Relationship Between Meditation, Food Choices, and Stress

REBEKA KELMAR
HI Deficiency in Group Galaxies

RORY BENNETT
Two New History List Interfaces for Performing Selective Undo

MARIA VAN NOSTRAND, SARAH HICKERNELL, WILL FISHER, HANNAH BARNES
Geochronology of Hornblende Granite in the Tunk Lake Pluton of Downeast Maine

ELIZABETH ALTMAN
Structure-Function Relationships Within the Human Body

JOHN SHULER
Drosophila athabasca Cuticular Hydrocarbon Synthesis

ELIZABETH DONLON, ADAM FORTI
Silica Aerogels Impregnated with Copper Nanoparticles: An Investigation of Three-Way Catalytic Ability

JACK BEATY
Modeling Medial and Lateral Tissue Damage in the Hind Legs of Mice

LISA GU
Synthesis of Quantum Dot Molecular Beacon Probes

MOLLIE POPE, ANDRES GALLEGO, TSHERING LAMA SHERPA, ABADIE LUDLAM, JOSHUA DUNN
Age of the Rapakivi Zone of the Tunk Lake Pluton in Downeast Maine

BENJAMIN NADARESKI
Multielemental Analysis of Radioactive Testing Sites via Proton Induced X-ray Emission Spectroscopy

GREGORY HAYNER
Quantification of Trehalose Using High-Performance Liquid Chromatography-Refractive Index Detection

JOHN JONKER
Manganese Oxide Nanomaterials for Energy Applications

NOLAN LESCALLEET, ALEXANDER DOLCIMASCOLO, JULIE SOPHIS, ALISON HORST
Ages of Zircon from the Biotite-Quartz Monzonite Zone in the Concentrically Zoned Tunk Lake Pluton

KYLE MASON
Simulating the Energy Consumption of Karp Hall Using EnergyPlus
SESSION III

12:20 P.M. – 1:50 P.M. POSTER PRESENTATIONS
WOLD CENTER ATRIUM

VINCENT OLIVETO
Design and Construction of a Thermoelectric HVAC Dehumidification System

ANNA KO
Can Humans Use a Robot’s Eye Gaze to Distinguish Between Similar Objects?

SAMANTHA GAVIN
Cerium Oxide Hollow Nanospheres for Adsorption of As(V) and Cr(VI)

PAIGE KOTOWITZ, ALEXANDRA NOVAK
Measuring Vapor Pressures with the ElectroDynamic Balance

CAROLINE TRAYNOR
Investigation of Iron Oxide Nanoparticles Embedded in Laponite Hydrogels for Water Purification

CAMERON SMITH
A Visual Interface for Product Exploration on Online Shopping Websites

NICHOLAS VAN NOSTRAND
Emotion Recognition App

THOMAS GAGLIARDI
Temperature Distribution in Bryophyte Canopies and its Relationship to Water Flux

NAAILA PHOENIX
Liposome Encapsulation for Drug Delivery

ALEXANDER DOLCIMASCOLO, ABADIE LUDLAM, JOSHUA DUNN
Union College Water Initiative (UCWI)—Testing for Heavy Metals in drinking water

QUINTIN LENOCI
BitScope Micro: A Reliable and Cost-Effective Oscilloscope

BIANCA MIELKE
Ballston Lake—Underwater Data Collector

SAMUEL KUPIEC, BLAIR HAGEN, MADELEINE MILLER
Micro Aero Competition Team

JAIME DEFELICE
Changes in Cartilage and Subchondral Bone in Mouse Femoral Condyles After Bone-Loading During Exercise

JAMES HAWKINS
The Effect of Recycled Materials and Adhesion Angle on the Tensile Strength of Additive Manufacturing

VENUS YU
Attracting Human Attention Using Robotic Facial Expressions and Gestures

ALEXANDRA NOVAK, PAIGE KOTOWITZ
UAir: The Union College Air Quality Network

MOLLIE POPE
The Investigation of the Provenance of Detrital Zircons from Dominica in Lesser Antilles

YUAN GAO
Develop Approaching Strategies for Social Robot to Ask for Assistance from Human

ROBERT RIGHI
Dispersing Carbon Nanotubes in Laponite Films and Hydrogels

JACOB PESSIN
Graphene Aerogels for Clean Energy

ANDREW FONTAINE
Design of a New ITES System

MADELEINE MILLER
Diffusion of Au/Pd in Iron Sulfide

ZONGLIANG JI
Exploring Fast Matrix Multiplication Algorithms
SESSION III

12:20 P.M. - 1:50 P.M.  ■ POSTER PRESENTATIONS
WOLD CENTER ATRIUM

HAYLEY BENNETT
Dissolved Inorganic Carbon Isotopes in Cretaceous-Paleogene Freshwater Streams

BRENDAN CHEEVERS, KATHLEEN MATTHEWS, NATE BILLINGS, BENJAMIN SCHWARTZ, CATHERINE KANAMA
SAE Aero Advanced Class Team

KEANU RODRIGUEZ, JOHN COSTA
Research & Design of a Liquid-Gas Propellant Rocket Engine

ALLISON DEVINS
The Player’s and Goalie’s Perspectives on Scoring Angles in Ice Hockey

EMMANUELA OPPONG
Analyzing the 3D Structure of the Spiral Intestine of a Cartilaginous Fish

PRANAV SHRESTHA
Distribution-Level Frequency Estimation and Modal Analysis Using Inexpensive and Open-Source Phasor Measurement Unit

STEPHANIE TATE
Visualization of the Actin Microfilaments and Microtubules in Response to ATP-Depletion

YIZHI LIN
Limbic Grey Matter Alterations in Patients with Trigeminal Neuralgia

PAIGE ISSER
Micro-CT Preparation Techniques

KEVAN MCDONALD, SONJA HANSSON
Evaluation of Cell-Permeable Analogs of Trehalose for Delivery of Free Trehalose into Mammalian Cells

TIANYU ZHAO
High-Tech Trade Policy During an Era of Global Industrial Restructuring
SESSION III

12:20 P.M. – 1:50 P.M. POSTER PRESENTATIONS
LALLY READING ROOM, SCHAFFER LIBRARY

MODERATORS: HANS MUELLER AND KRISTIN BIDOSHI

KIMBERLY WELLINGTON
How Much Education is Too Much?

PETER RICHARDSON
The Evolution of Credit Markets in Archaic and Classical Athens

MATTHEW RAMETTA
Controversies in Industrial Policy: The Creation of an Explicit U.S. Industrial Policy

IAN BENNETT
Net Neutrality: Policy and Stock Market Implications

OLIVIA BRITTON
Echoes of Despair: The Grim Reality of Syrian Refugees

LAUREN MELTZ
The Relationship Between Children’s Social Environment and Susceptibility to Asthma

NATALYA BRILL
Conceptualizing Prefixed Russian Verbs of Motion in Virtual Reality

REBECCA LIPPITT
China and the Character Debate

ANDREW CASSARINO
The Duke of Richmond: The Military Career of Edward Hastings Ripley, 1862–1865

CASEY MORIARTY
Commemorating Tragedy

DIMPLE PERMAUL
Caribbean Immigration in France and the United States

TAYLOR GORMAN
Matris Imperium: A Dramatic Interpretation of the Life of the Empress Agrippina, Mother of the Empire

JAHICOL BARALT
Classical Reception in Ryse: Son of Rome
SESSION III

12:20 P.M. – 1:50 P.M. ☑ ENGINEERING PROJECT DISPLAYS
WOLD ATRIUM, WOLD 031 (PHASOR LAB) AND WOLD 118

DESIGN OF A CONTROLLABLE BOUNCING MECHANISM

GALEN MOYNIHAN

A vertically controllable bouncing mechanism has been designed and will be demonstrated.

PHASOR LAB

RICHARD BOAKYE, KABIR CHABRA, PATRICK COWDEN, CHRISTIE DIONISIOS, JACKSON DOUGHTY, JESSICA FEINBERG, DAVID FISHMAN, GILLIAN HENRY, ZACKARY HERSH, ALEXANDER HEYWOOD, A. J. HUBBARD, CATHERINE KANAMA, JOHN KODERA, MILTON MICHEL, EMILY NEWMAN, NAAILA PHOENIX, PAMELA RICE, NATE SEARS, VARUN SHAH, SERAJ SIDIBE, MICHELLE STAPLES, NICHOLAS VAN NOSTRAND, NICHOLAS WRIGHT, SCOTT ZINCK

Students will discuss projects involving electrical engineering and music and a student-organized music therapy initiative: “Music with Arc.” A program of musical performances will include a special appearance by the Heavenly Voices Gospel Choir, led by musical director Lynny Walters, adjunct professor of music.

SOLAR POWERED LAWN TRIMMER

COLIN MCCAFFREY, DANIEL BEINSTEIN

The lawn mower is able to cut a quarter-acre of land in a week controlled by using a RC radio, receiver, and relay. This lawn mower uses a Stanley Black & Decker weed wacker as the cutting device and the device uses two driving wheels. The cutting device and the driving wheels are powered by a combination of a 12-volt lead-acid battery and a 12-volt solar panel.

UNION COLLEGE ROBOTICS CREW MICROMOUSE DEMOS

TEAM A:

EDWARD GEBARA, DAVID KOVAL, PRANAV SHRESTHA

TEAM B:

PYAE SONE AUNG, JERRY JI, ANTHONY YANG, LAM NGO

Teams who designed, constructed and programed autonomous robots for a maze-solving competitions will explain and demonstrate their robots. This year’s two teams entered the competition hosted at Brown University.
SESSION III

12:20 P.M. – 1:50 P.M. ■ ARCHITECTURAL RENDERING AND MODELS
REFERENCE ROOM, SCHAFFER LIBRARY

TRANSITIONAL SPACE AS AN AESTHETIC EXPERIENCE:
THE SCHENECTADY AMTRAK STATION
REDESIGNED FOR A REVITALIZED FUTURE

SAMANTHA MILLER
This display represents an investigation of the architectural history of Schenectady, and an exploration in designing for revitalization in such a heavily layered architectural context.

12:20 P.M. – 1:50 P.M. ■ MINERVA FELLOWS POSTER AND VIDEO PRESENTATION
REFERENCE ROOM, SCHAFFER LIBRARY

SPONSOR: TOM MCEVOY
Eight Minerva Fellows will be on-hand to discuss their volunteering experiences abroad during this poster and video presentation.

ANDREW FELLOWS
Aspire Food Group, Ghana
Insects as a Source of Protein for the Hungry

DAVID ROY
Witkoppen Health Center, Johannesburg
Antiretrovirals to Combat HIV Transmission from Mothers to Babies

BRIANNA CARUCCIO AND MATTHEW WOLFORD
Engeye Health Clinic, Uganda
An Expanding Community-Based Rural Ugandan Health Clinic

ALLISON BOREK AND EMILY MYERS
The Global Child, Cambodia
Incentivizing Cambodian Street Children to Learn

JONATHAN MARTIN AND ZIBUSISO DHLAMINI
Yanapuma, Ecuador
Estero De Platano, Ecuador, Community Development in a Rural Fishing Village on the Pacific
SESSION IV

2 – 3:20 P.M. ▬ CONCURRENT ORAL PRESENTATIONS

LIPPMAN 014

AMERICAN STUDIES
MODERATOR: ZOE OXLEY

2 P.M. // ELIZABETH DALTON
Race to the Bottom: The United States’ Early Childhood Education Issue

2:20 P.M. // SARAH RIDER
The 60s: Re-Defining the American Identity

2:40 P.M. // SARAH MEDD
The Truth Behind the American Dream: An Analysis of how the Great Recession Affected Minority Homeownership Rates and Presidential Rhetoric

LIPPMAN 101

APPLIED MICROECONOMICS
MODERATOR: YOUNGHWAN SONG

2 P.M. // JING JIN
Do Elderly Workers Crowd Out Younger Workers in the United States?

2:20 P.M. // JOHN PERROTTI
The Connection Between Gasoline Prices and Physical Activity: Potential Ways to Combat the Rise in Obesity

2:40 P.M. // GREGORY GEISEL
Weight and Wages: The Effect of Changing BMI Over Time

KARP 005

BIOCHEMISTRY II
MODERATOR: KRISTIN FOX

2 P.M. // MOLLY MCDONALD
ScMC4 is a Metacaspase Active in Cleaving Peptides after Arg Residues

2:20 P.M. // JENNA PRADHUMAN
Use of CRISPR to Develop a Follicle Stimulating Hormone Receptor Knockout in Human Granulosa Cells to Study Lipid Raft Residency

2:40 P.M. // STEPHANIE SCHARBACH
Cloning, Expression and Characterization of ScMC2

NOTT MEMORIAL

DANCE DOCUMENTARY
MODERATOR: MIRYAM MOUTILLET

2:20 P.M. // MADDISON STEMPEL-PIATT
Life in the Mirror: A Short Documentary on Body Image in Dance

LIPPMAN 017

ECONOMICS IV
MODERATOR: LEWIS DAVIS

2 P.M. // PATRICIA MARAGOS

2:20 P.M. // BENJAMIN FAY
Do Preferential Trade Agreements Affect US Exports?

2:40 P.M. // MICHAEL FROMAN
Urban Redevelopment: New Bedford, Massachusetts

3 P.M. // CHARLOTTE AVERY
Economics Thesis

WOLD 128

ENVIRONMENTAL SCIENCE, POLICY & ENGINEERING
MODERATOR: DOUGLAS KLEIN

2 P.M. // DAVID OLIO
Analyzing the German Phase-Out of Nuclear Energy

2:20 P.M. // MICHAEL SCIASCIA
New York State’s Zero Emission Credits: Exploring the Drivers and Significance of Nuclear Energy Subsidization in the Empire State
2:40 P.M. // KATHERINE QUINLAN

3 P.M. // ERIK VAN ZIJL

KARP 004

FRENCH AND FRANCOPHONE STUDIES: LOUISIANA, QUEBEC, HAÏTI: TROIS MONDES FRANCOPHONES
MODERATOR: CHEIKH NDIAYE

2 P.M. // VINCENT DEFELICE
French Colonialism in Louisiana through Historical Fiction

2:20 P.M. // ASTRID VARGAS
Haiti’s Story and its Health

2:40 P.M. // BRIADNA ALMAZO
The Motives for Healthcare Privatization in Quebec

OLIN 306

GEOLOGY III: GEOCHEMISTRY OF ROCKS, MINERALS, AND WATER
MODERATOR: HOLLI FREY

2 P.M. // KATHERINE SWAGER
Volcanic Apatite Chemistry and Zoning in the Roseau Valley, Dominica, Lesser Antilles

2:20 P.M. // DANIEL MEANDRO
Establishing an Isotopic Geochemical Baseline for Volcanic Monitoring: Dominica, Lesser Antilles

2:40 P.M. // CARLI ARAGOSA
Monitoring Geochemistry in the Valley of Desolation/Boiling Lake, an Active Hydrothermal System in Dominica

3 P.M. // BENJAMIN LUCAS
Prescott Intrusive Complex, Central Massachusetts, Geochemistry and Structural Reinterpretation

LIPPMAN 012

KLEMM FELLOWS II
MODERATOR: MARK DALLAS

2 P.M. // LAKHENA LEANG
The Developed Mindset in a Developing Country: Healthcare in Rural Cambodia

2:20 P.M. // CHRISTINA DYKAS
Prenatal, Birthing, and Postpartum Care in Arusha, Tanzania

2:40 P.M. // EMMA STEIN
Klemm Fellowship in Cape Town, South Africa

3 P.M. // ERIC LOVETT
A Global Analysis: Midwifery and Pediatric Care in Arusha, Tanzania

BAILEY 207

MATHEMATICS III
MODERATOR: ALAN TAYLOR

2 P.M. // CONNOR HURLEY
Choice of Choice: Paradoxical Results in Zermelo-Fraenkel Set Theory

2:20 P.M. // RUOXUAN JIA
The Axiom of Choice in Topology

2:40 P.M. // REBEKA KELMAR
An Investigation of the Four Vertex Theorem and its Converse

3 P.M. // FRANCIS ROCCO
Elliptic Curve Cryptology
SESSION IV

2 – 3:20 P.M.  □ CONCURRENT ORAL PRESENTATIONS

SCIENCE AND ENGINEERING N205

MECHANICAL ENGINEERING—MATERIALS CHARACTERIZATION
MODERATOR: RONALD BUCINELL

2 P.M. // ROBERT KEEVER
Characterization of Mechanical Properties of Skeletal Mycelium through Tensile Testing

2:20 P.M. // RAQUEL PARAMO
Optimizing Speckle Patterns for Digital Image Correlation

2:40 P.M. // JUSTIN ITZKOWITZ
Environmentally Friendly 3D Printing Materials

3 P.M. // EVAN ARMANETTI
The Optimization of a Natural Composite I-beam for 2017 SAMPE Miniature Bridge Competition

BAILEY 201

NEUROSCIENCE
MODERATOR: DAVE HAYES

2 P.M. // RACHEL FIELDS
Steady State Visual Evoked Potentials for Binary Communication Responses in EEG-based Brain Computer Interface

2:20 P.M. // BAILEY BALOUCH
Characterization of Fibroblast Cells Derived from a Patient with Infantile Neuronal Ceroid Lipofuscinosis

2:40 P.M. // NEEL PATEL
A Study in Learning

3 P.M. // ABIGAIL TESTO
An Examination of the Relationship Between Grey Matter and Depression and Anxiety Scores

BAILEY 312

NEUROSCIENCE: THE INFLUENCE OF EXERCISE
MODERATOR: LINDSAY MORTON

2 P.M. // NOEMIE BECHU
The Road to Recovery: Predicting Improvement in Physical Therapy Programs

2:20 P.M. // MICHAELA HALLER
Interactive Physical and Cognitive Exercise System (iPACES™): The Cognitive Effects of Exergaming on Individuals on the Autism Spectrum

2:40 P.M. // ALEXA TSAO
The Study of Flow in Exergaming with Autism Spectrum Individuals through the Interactive Physical and Cognitive Exercise Study (iPACES)

KARP 105

ORGANISMAL BIOLOGY II
MODERATOR: JEFFREY CORBIN

2 P.M. // KATHERINE MAXIMOV AND CATE WADMAN
Color Vision and Signal Color Evolution in Anolis Lizards

2:20 P.M. // NAINA THOTA
Investigating Possible Mechanisms of the Invasive Shrub, Lonicera tatarica, to Enhance Black-Legged Tick Survival

2:40 P.M. // RACHEL FRIED
Predictors of Exotic Plant Species in United States National Parks
SESSION IV

2 – 3:20 P.M. CONCURRENT ORAL PRESENTATIONS

SCIENCE AND ENGINEERING N304

PHYSICS
MODERATOR: MIKE VINEYARD
2 P.M. // BRENDAN O’CONNOR
Binary Stellar Wind Collisions with Orbital Motion
2:20 P.M. // MORGAN CLARK
Ion-Beam Analysis of Artificial Turf

LIPPMAN 016

POLITICAL SCIENCE III
MODERATOR: MICHELE ANGRIST
2 P.M. // MARGARET GIRTON
A Glimpse at Teaching Leadership in America: Case Studies Illuminate the Problems
2:20 P.M. // EDWARD ORAZEM
The Case for Natural Political and Moral Evolution
2:40 P.M. // CAOCHONG ZENG
Friend or Foe: An Analysis of the United States Military Bases in Okinawa, the Republic of Korea, and the Republic of the Philippines and the Local Conflicts They Involved
3 P.M. // MEAGHAN REID
Revisiting the Geneva Accords
SESSION V

3:30 – 5:10 P.M.  ■ CONCURRENT ORAL PRESENTATIONS

WOLD 225

AEROGELS

MODERATORS: ANN ANDERSON & MARY CARROLL

3:30 P.M.  // LUISA POSADA
Fabrication and Characterization of Ceria-Containing Aerogels

3:50 P.M.  // SEAN FARRELL
Simulation of Flow Through Catalytic Aerogel Material Using Lattice-Boltzmann Methods

4:10 P.M.  // JACOB CETNAR
Aerogel Based Diesel Particulate Filters

4:30 P.M.  // YI TING PAUNG
Investigation of Doped Silica Aerogels for Drug Delivery Systems

4:50 P.M.  // MAYA BAUER-MOSHI
Development of a Super-Insulating Aerogel Window: Production of Monolithic Silica Aerogel

KARP 005

BIOLOGY II

MODERATOR: ROBERT LAUZON

3:30 P.M.  // KIMBERLY MACLEOD
Investigation of the Introduction of Avian Influenza to Poultry Stocks via Communal Water Contamination from Wild Waterfowl Populations

3:50 P.M.  // MATTHEW WU
The Effects of an AFP Peptide Analog on the Proliferation of HepG2 Hepatocellular Carcinoma Cells

4:10 P.M.  // KIM NGUYEN
Genomic Patterns of Divergence in Drosophila Athabasca

4:30 P.M.  // SIERRA GOODFELLOW
Phosphagen Energetics in Developing Grasshoppers

4:50 P.M.  // ANDREW PARNES
A Flow Cytometry Analysis of Apoptosis Reversibility in Mammalian Lymphocytes Following Cytokine Deprivation

KARP 002

ANTHROPOLOGY III

MODERATOR: KAREN BRISON

3:30 P.M.  // CHLOE BARTLETT
Social Class Differences in Enrichment Programs

3:50 P.M.  // SHARMEEZ AZHER
She’s Crying “Rape”: An Indian City’s Response to the Rape Crisis

4:10 P.M.  // CLAIRE KELLY
Thinking about Toilets: Swachh Bharat and the Political and Social Motivations behind Sanitation Progress in India

4:30 P.M.  // HANNAH GOTOFF, ABIGAIL SALAMONE, SHARMEEZ AZHER, ANDREA BECKER, CLAIRE KELLY, AND HANNAH RAYHILL
Cleaning India: Examining Sanitation Issues in an Urban Slum

4:50 P.M.  // ANDREA BECKER
Jaipur Foot: Where Prosthetics No Longer Cost an Arm and a Leg

LIPPMAN 016

ECONOMICS V

MODERATOR: KAYWANA RAEBURN

3:30 P.M.  // KARA SCHWAB
Small Business Survival: A Study of New Entrepreneurial Business Endeavors

3:50 P.M.  // KRISTEN LANDRE
Acquirer Shareholder Value Creation in United States Mergers and Acquisitions

4:10 P.M.  // VICTORIA MAROTTA
Is the Union College Community Willing to Pay More for Fair Trade Coffee?

4:30 P.M.  // FRANCIS ROCCO
Bitcoin Volatility and Currency Acceptance: A Time-Series Approach

4:50 P.M.  // LAUREN GIBSON
Internship Satisfaction and Educational Performance
SESSION V

3:30 – 5:10 P.M.  ▶️ CONCURRENT ORAL PRESENTATIONS

**LIPPMAN 017**

**ECONOMICS VI**
**MODERATOR: TOMAS DVOVAK**

3:30 P.M. // **KAROL JABLONSKI**  
Optimum Currency Areas and the European Experience: An Examination of Diverging Competitiveness Among Key EU Nations

3:50 P.M. // **JOSHUA SCHWARTZ**  
The Impact of Wealth and Sentiment on Consumption: Before and After the Great Recession

4:10 P.M. // **KEVIN TRAN**  
Is Graduate School Worth It? Evaluating the Return on Investment in a Master’s Degree

4:30 P.M. // **SARAH ELLERTHORPE**  
An Estimation of the Production Function of Water Utilities in the United States

4:50 P.M. // **EMILY SU**  
Hospital Merger and Acquisition Effects on Healthcare Quality and Cost

**WOLD 128**

**ELECTRICAL & COMPUTER ENGINEERING**
**MODERATOR: JAMES HEDRICK**

3:30 P.M. // **RILEY KONSELLA**  
Designing a Modular Strut for Union’s Tensegrity Robot

3:50 P.M. // **MATTHEW GOFF**  
Recording a Game of Go From Video

4:10 P.M. // **JOHN KODERA**  
Ultrasonic Ride Height Control for Self-Levelling Air Suspension Systems

4:30 P.M. // **JACKSON DOUGHTY**  
Experimental Setup for Evaluating the Health of Transformers

4:50 P.M. // **PATRICK COWDEN**  
Audification and Sonification of Power Grid Data

**OLIN 306**

**GEOLOGY IV: PROVENANCE AND FAULTING IN THE WESTERN U.S.**
**MODERATOR: JOHN GARVER**

3:30 P.M. // **ALISON HORST**  
U-Pb and Hf Geochronology of Schist of Sierra de Salinas in the Salinian Block, California

3:50 P.M. // **NOLAN LESCALLEET**  
The San Juan Fault: an E-W Trending Left-Lateral Strike Slip Fault Zone Inferred from Analysis of Kinematic Indicators, Vancouver Island, British Columbia

4:10 P.M. // **JULIE SOPHIS**  
Provenance of Detrital Zircon in the Upper Cretaceous Flysch and Mélange of the Yakutat Group, Alaska

4:30 P.M. // **ALEXANDER DOLCIMASCOLO**  
Provenance and Age of Granite Clasts in the Yakutat Mélange, Alaska

**BAILEY 201**

**INTERDISCIPLINARY SOCIAL PSYCHOLOGY**
**MODERATOR: GEORGE BIZER**

3:30 P.M. // **ANGELINA DISTEFANO**  
The Effect of Parent-Child Relationships on Choice of Intimate Partners

3:50 P.M. // **MOLLY GRAETHER**  
Love Thy Attachment Figures as Thyself: Self-esteem Predicts Deviations in Adult Attachment Security

4:10 P.M. // **BENJAMIN MOUNTAIN**  
The Adaptive Gender: Effects of Social Conformity on Gender Self-Perception

4:30 P.M. // **BRIANNA SEID**  
Paid Maternity Leave Legislation: Do Laws Mandating Paid Maternity Leave Impact Attitudes Towards Working Mothers?

4:50 P.M. // **SARALYNN (JUNWEN) SU**  
Effect of Narrative Transportation Varies by Product Type and Gender
SESSION V

3:30 – 5:10 P.M. ▯ CONCURRENT ORAL PRESENTATIONS

SCIENCE AND ENGINEERING N205

MECHANICAL ENGINEERING—ENERGY APPLICATIONS
MODERATOR: RICHARD WILK

3:30 P.M. // ADAM FORTI
Integrating Triboelectronic Nanogenerators into Wind Turbine Rotors

3:50 P.M. // ADAM FORTI, ELIZABETH DONLON, AND JOHN COSTA
Green Fee Awardee 2017: Designing and Building a Multiple-Rotor Triboelectric Wind Turbine

4:10 P.M. // GRACE STEWART
Wave Power: Rotating Mass Wave Energy Converter

4:30 P.M. // DANIEL SAKAKINI
Durable eBike Battery-Swap Station

4:50 P.M. // SUNAN SUN
Modeling the Monthly Average Diurnal Solar Irradiation on a Vertical Surface

LIPTMAN 012

POLITICAL SCIENCE IV
MODERATOR: LORI MARSO

3:30 P.M. // JULIE NIEJADLIK
War’s Children

3:50 P.M. // RAIESA FRASER
Examining Police Brutality Toward Black Lives and Social Justice Reform in the U.S. and Brazil

4:10 P.M. // GILLIAN HENRY
Monstrous Mothers: The Politics of Forced Mothering

4:30 P.M. // JUSTIN GUMP
When Personal Becomes Profitable: Data Collection and the Complex Link Between Corporate and Government Surveillance, and the Risk to Civil Liberties

4:50 P.M. // EMILY SPIDLE
Invisible and Incarcerated: Women in a Male-Dominated U.S. Prison System
STEINMETZ DANCE PERFORMANCE

FRIDAY, MAY 12  4 P.M.  NOTT MEMORIAL

THE 2017 LOTHRIDGE FESTIVAL OF DANCE
Faculty Sponsor / Director of Dance: Miryam Moutillet

FACULTY CHOREOGRAPHIES

STEREOTYPES
CHOREOGRAPHED BY MIRYAM MOUTILLET
MUSIC BY BLACK VIOLIN
Emily Alston, Carly Cherches, Sydney Conner, Yixin He, Abby Polott, Emily Su and Portia Taylor

DANCE EXPERIENCE
COLLABORATION DIRECTED BY MIRYAM MOUTILLET
Sydney DeCesare, Madalyn Engvold, Yixin He, Abby Polott, Portia Taylor, Julia Waszak and Shannon West

CLAP SNAP
CHOREOGRAPHED BY MARCUS ROGERS
MUSIC BY ICONA POP
Cassandra Call, Kathleen Matthews, Emily Rasmussen, Emily Su and Megan Wells

STAND BY ME
CHOREOGRAPHED BY MARCUS ROGERS
MUSIC BY SEAL
Cassandra Call, Kathleen Matthews, Emily Rasmussen, Olivia Ricci and Emily Su

STUDENT CHOREOGRAPHIES

DENY THE DEFAULT SELF
CHOREOGRAPHED BY EMILY ALSTON
MUSIC BY HIROYUKI SAURANO
Emily Alston, Emily Jennings, Grace Kernohan, Bianca Mielke and Maddison Stemple-Piatt

INSOMNIA
CHOREOGRAPHED BY AYANAH DOWDYE
MUSIC BY FATZ FOREAL
Madison Altman, Brendan Coleman, Ayanah Dowdye, J’Kela Smith and Maddison Stemple-Piatt

HEALING
CHOREOGRAPHED BY LILY HEROUT
MUSIC BY BIRDY
Lily Herout, Grace Kernohan, Bianca Mielke, Maddison Stemple-Piatt and Megan Wells

OPTIMIST
CHOREOGRAPHED BY GRACE KERNOHAN
MUSIC BY ZOË KEATING
Emily Alston, Sydney Conner, Lily Herout, Caitlin McMahon, Bianca Mielke, Danielle Pinney and Shannon West

FLY
CHOREOGRAPHED BY MADISON STEMPLE-PIATT
MUSIC BY LUDOVICO EINAUDI
Danielle Pinney and Shannon West

THE DEADLY 7 & 1
CHOREOGRAPHED BY J’KELA SMITH
MUSIC BY BRUNO MARS, MAROON 5, WILLY WONKA AND THE CHOCOLATE FACTORY, BOW WOW, LABRINTH, MEEK MILL/ FRENCH MONTANA/ BOBBY SHMURADA, JULIE ANDREWS, BANKS, RIHANNA, KANYE WEST AND ZOEY DOLLAZ
Brendan Coleman, Ayanah Dowdye, Lily Herout, Grace Kernohan, Bianca Mielke, J’Kela Smith, Maddison Stemple-Piatt and Shannon West

REMEMBER ME
CHOREOGRAPHED BY GRACE KERNOHAN
MUSIC BY GAVIN JAMES
Olivia Cipriani, Grace Kernohan, Lily Herout, J’Kela Smith and Maddison Stemple-Piatt
STEINMETZ DANCE PERFORMANCE

FRIDAY, MAY 12  ■  4 P.M.  ■  NOTT MEMORIAL

STUDENT DANCE CLUBS

AFRICAN DANCE CLUB (ADC)
CHOREOGRAPHED BY JOCELYNE AKAMALIZA, AISSATTA DIALLO, EMMANUELLA OPPONG AND OUMOU ZAKARIA
MUSIC BY RUNTOWN, JOEY B, CECILE KAYIREBWA, KALABONBON AND BEBETO
Jocelyne Akamaliza, Celia Briffaut, Irving Cortes-Martinez, Aissata Diallo, Beryl Isiji, Venesha Morris, Emmanuela Oppong, Ademilola Oyetuga and Oumou Zakaria

BHANGRA UNION
CHOREOGRAPHED BY TAYLOR ALLEN, MEGHANA DAMARAJU, KATHRYN EVANS, DANIELLE GREGG, AND BREND A LIN
Taylor Allen, Meghana Damaraju, Kathryn Evans, Danielle Gregg, Jeamela Guilloteau, Kaylyn Hung, SavannaJelks, Brenda Lin, Metri Kumar, Maha Mian, Dhruv Patel, Drishti Patel, Alan Perrotti, Jonathan Raymundo, Sapan Shah and Ankoor Talwar

HIP-HOP CLUB
CHOREOGRAPHED BY BRENDAN COLEMAN
Hayley Bennett, Giovanna Coelho, John Costa, Brendan Coleman, Angelica DeDona, Julia Delaney, Christie Dionisis, Ayanah Dowdy, Maha Mian, J’Kela Smith and Maddison Stemple-Piatt

JUST QUEENIN
CHOREOGRAPHED BY TRU EDWARDS AND LARISSA UMULINGA
MUSIC BY LIL JON, NICKI MINAJ, JASON DERULO AND OMARION
Shyan Brown, Tru Edwards, Saragrace Magre, Yesenia Negron and Larissa Umulinga

STEP TEAM
CHOREOGRAPHED BY SHYAN BROWN AND SARAGRACE MAGRE
Richard Boakye, Shyan Brown, Angelica Dedona, Jennifer Duran, Nahorn Ghile, Christa Guerrier, Anna Harootunian, Kelly Ijang, Corinne Jean-Gilles, Melvin Kelly, Saragrace Magre, Sumail Morton, Yesenia Negron, Felika Poblah, Sharda Ramcharan, Larissa Umulinga and Jacinta Utubor

TERRA DANCE COMPANY
CHOREOGRAPHED BY EMILY SU
MUSIC BY LONGYIN
Danielle Gregg, Kaylyn Hung, Minh Le, Brenda Lin, Darlene Pedines, Elena Pettiford and Emily Su

UNION DANCE TEAM
CHOREOGRAPHED BY CAPTAINS GRACE KERNOHAN AND MADDISON STEMPLE-PIATT
MUSIC BY WHITNEY HOUSTON
Kathryn Bangser, Anna Byrne, China Campagnuolo, Carly Cherches, Brendan Coleman, Sydney Conner, Julia Greene, Grace Kernohan, Danielle Pinney, Abby Polott, Emily Rasmussen, Allison Smith, J’Kela Smith, Maddison Stemple-Piatt and Shannon West

FOR THIS PERFORMANCE, WE WOULD LIKE TO THANK:

William E. and Anna S. Lothridge 1879 Fund
Charles D. Lothridge ’44 Edward Villella Fellowship
Joan Gould Scholarships
Robert Bovard
Technical Director
Brittney Belz
Costume Coordinator
Andy Iorio
Musical Director-Audio Editor
Ryota Matsue
Photographer-Filmmaker
Ayanah Dowdy
Work Study
STEINMETZ CONCERT 2017

FRIDAY, MAY 12  ■  8 P.M.  ■ MEMORIAL CHAPEL

PROGRAM

SELECTIONS FROM EUROPEAN CHOIR TOUR
(PLUS TELEMAN)
“GREAT GETTING-UP MORNING”
Trad, arr. Ken Burton

EIN FESTE BURG IST UNSER GOTT
G. P. Telemann
(1681-1767)

“ANGELIS SUIS DEUS”
J. M. Haydn
(1737-1806)

“IN NOMINE JESU”
J. Handl (Gallus)
(1550-1591)

SANCTA MARIA, MATER DEI, K. 273
W. A. Mozart
(1756-1791)

SOPRANO
Elyse Clark ’18
Emese Dunn ’20
Chujun Li ’18
Yizhi Lin ’18
Hope Noonan-Stoner ’20
Lili Wang ’20

ALTO
Waner Chen ’19
Shannon Collins ’20
Yixin He ’19
Anna Ko ’17
Rachael Powers ’17
Pamela Rice ’19
Shreya Srivastava ’20
Maria Van Nostrand ’18

TENOR
Erkan Bertram ’18
William Garner ’18
Matthew Hacker ’17
Nathan Gillespie ’20
Nathan Oasis ’19

BASS
Joshua Chin ’19
Kyle Doney ’20
Clifford Elike ’20
Andrew Forte ’18
Chandler Sturgeon ’18
Anthony Yang Xu ’19
Bowei Xu ’19

PROGRAM

KARELIA SUITE
JEAN SIBELIUS

ALLEGRO FROM PIANO CONCERTO IN G MAJOR
W. A. Mozart
Cheechee Qi ’20, piano soloist

ALLEGRO MODERATO FROM VIOLIN CONCERTO IN G MINOR
Max Bruch
Alexander Heywood ’20, violin soloist

ACADEMIC FESTIVAL OVERTURE
Johannes Brahms

VIOLIN
Alexander Heywood ’20
Lisa Gu ’19
Daila Haden ’19

CELLO
Mushan Zhong ’20

BASS
William Yao ’20
Emily Coello ’20

PICCOLO/FLUTE
Rachel Fox ’20

FLUTE
Katie Gregory ’20
Madelynn VanDorpe ’18

CLARINET
Tommy Han ’19

HORN
James Henry Scott ’20

TRUMPET
Nicholas Meixsell ’19
John Vu ’19
Daniel Toland ’18

PERCUSSION
Cheechee Qi ’20

UNION COLLEGE CHOIR
Music Director: Professor Dianne McMullen
Pianist: Elinore Farnum

UNION COLLEGE AND COMMUNITY ORCHESTRA
Music Director: Professor Hilary Tann
MUSIC

SATURDAY, MAY 13  ■  2 P.M.  ■  FRED L. EMERSON FOUNDATION AUDITORIUM, TAYLOR MUSIC CENTER

Directed by: Professor Timothy Olsen

FLUTE
Ben Megathlin ’17

SAXOPHONE
Patrick Cowden ’17
Lauren Elder ’19
Jonathan Fields ’18
Kyle Miller ’18
Alex Pradhan ’20
Nate Sears ’18

TRUMPET
Nick Meixsell ’19
Zack Porat ’20
Dan Toland ’19

TROMBONE
Scott Koszer ’19

PIANO/VOCALS
Nate Gillespie ’20

DRUMSET/PERCUSSION
Matt Cole ’19
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.