Graduate School of Arts and Sciences

Commencement Ceremony

Yale University
Sunday, May 23, 2021
Order of Exercises

COMMENCEMENT CEREMONY
Graduate School of Arts and Sciences
Sunday, May 23, 2021

Academic Procession

Peter Salovey  
University President

Chris Argyris Professor of Psychology

Lynn Cooley  
Dean, Graduate School of Arts and Sciences
Vice Provost for Postdoctoral Affairs
C.N.H Long Professor of Genetics, Professor of Cell Biology and Molecular, Cellular and Developmental Biology

Akiko Iwasaki  
Waldemar Von Zedtwitz Professor of Immunobiology and Molecular, Cellular and Developmental Biology, and Professor of Epidemiology

Gary Brudvig  
Benjamin Silliman Professor of Chemistry

Kelly Shue  
Professor of Finance

Sharon Kugler  
University Chaplain

Pamela Schirmeister  
Deputy Dean and Dean of Strategic Initiatives

Michelle Nearon  
Senior Associate Dean for Graduate Student Development and Diversity

Allegra di Bonaventura  
Associate Dean for Graduate Student Academic Support

Ann Gaylin  
Associate Dean for Graduate Education

Lisa Brandes  
Assistant Dean for Student Life

Danica Tisdale Fisher  
Assistant Dean of Diversity

Lucylle Armentano ’21 PhD in Psychology  
Student Marshal

Stephen Gaughran ’21 PhD in Ecology and Evolutionary Biology  
Student Marshal
COMMENCEMENT CEREMONY
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Greetings
Lynn Cooley
Dean, Graduate School of Arts and Sciences
Vice Provost for Postdoctoral Affairs
C.N.H Long Professor of Genetics, Professor of Cell Biology and Molecular, Cellular and Developmental Biology

President’s Remarks
Peter Salovey
University President
Chris Argyris Professor of Psychology

Introduction of the Keynote Speaker
Lynn Cooley
Dean, Graduate School of Arts and Sciences
Vice Provost for Postdoctoral Affairs
C.N.H Long Professor of Genetics, Professor of Cell Biology and Molecular, Cellular and Developmental Biology

Keynote Address
Akiko Iwasaki
Waldemar Von Zedtwitz Professor of Immunobiology and Molecular, Cellular and Developmental Biology, and Professor of Epidemiology

Presentation of Candidates for Degrees
Lynn Cooley
Dean, Graduate School of Arts and Sciences
Vice Provost for Postdoctoral Affairs
C.N.H Long Professor of Genetics, Professor of Cell Biology and Molecular, Cellular and Developmental Biology

Closing Remarks
Lynn Cooley
Dean, Graduate School of Arts and Sciences
Vice Provost for Postdoctoral Affairs
C.N.H Long Professor of Genetics, Professor of Cell Biology and Molecular, Cellular and Developmental Biology

Benediction
Sharon Kugler
University Chaplain
GRADUATE MENTOR AWARDS
This year, for the twenty-second time, the Graduate School honors faculty members for their exemplary qualities as mentors. Many dissertation advisers were nominated, and the honorees were chosen by a committee of students and faculty. All letters of nomination were anonymous.

The text below represents comments (edited for brevity) from student nominations.

In the Humanities

JENNIFER RAAB
Associate Professor in the History of Art

Professor Raab is the best educator I have had at Yale. She is a phenomenal advisor whose care, attention, and rigor in mentorship has been crucial to my academic success, and to my development as a writer. She is also a fantastic human being whose humility, fairness, and honesty has modeled the way for me in my own life. Despite being an incredibly busy academic whose path on the tenure track is no doubt freighted with tremendous responsibilities, Professor Raab is generous with her time. She takes the effort to diagnose the root causes of any shortcomings in a student’s work, and her willingness to not shy away from even-handed criticism makes her stand out in our department. Jenny will not commend a student at the expense of the quality of their work, but she also always gives praise and encouragement when it is due.

Professor Raab’s academic advice, which carries lessons of the importance of humility and vulnerability, has served me well in both work and life. Her outspoken support for both the professional and personal well-being of her students – and the balance between the two – is admirable in a program that is highly demanding. In an era of both performative busyness and burnout, she sets an exemplary standard for future generations of young academics, who will, as she does, work to ensure that their departments and their students have healthy priorities and sustainable communities. I have taken her words to heart and am much better off as a scholar and a human being for it.

In the Natural Sciences

GARY BRUDVIG
Benjamin Silliman Professor of Chemistry

Gary’s strongest impact on me was after my advisor Charlie Schmuttenmaer’s sudden passing in 2020. Despite his loss of a close collaborator and friend, Gary immediately reassured our group of four graduate students and one postdoc and assumed the role of advisor for all of us, allowing us to stay together and keep our research facilities operating, until the final graduate student graduates in a few years. As we all know, being an advisor is not easy work. Taking on a postdoc and four graduate students without a thought exemplifies Gary’s character and we are deeply grateful to him. Charlie and Gary worked together for many years and were close friends, so Gary wanted to ensure Charlie’s legacy would continue.

As an advisor, Gary manages to be inspiring and scientifically challenging without being intimidating or demanding. He allows his mentees to use their time in graduate school to develop as scientists and people in the ways we find most valuable. Of course, the chemistry is always the main goal, but Gary also encourages students to spend time taking extra classes, gaining teaching skills, and leading outreach efforts. I think the best way to sum up what makes Gary such a great advisor and mentor is that he allows for each of his students to have the flexibility to follow their own passions.
I can’t think of anyone more deserving of the Graduate Mentor Award than my dissertation advisor Professor Kelly Shue. Despite her own very active research, she goes above and beyond to support her PhD advisees. She cares deeply about their personal and professional success and does everything she can to help them reach their full potential as scholars. This year has been especially challenging for graduate students. Professor Shue recognized students’ isolation and set aside time with her advisees on Zoom to talk through the individual challenges they were facing and how she could help them make the most of the situation. Kelly was actually pregnant when the COVID-19 lockdown began and was scheduled to be on leave during the Fall 2020 semester. For her advisees, though, it was impossible to tell. She was always available on Zoom to talk through research struggles and offer advice on how to overcome them.

In a year when many academic conferences have been canceled or gone virtual, Professor Shue tried to make up for the lost networking opportunities by connecting students with other faculty members who do work in the same fields. She will go the extra mile for her advisees. When one of us, a young mother, had no quiet space for Zoom meetings, Professor Shue actually offered her own office for the student to use—it was a heartwarming gesture that epitomizes the very best of Yale graduate mentorship.
GRADUATE SCHOOL STUDENT PRIZES

Departmental Awards

The Marston Anderson Prize is awarded on an occasional basis to truly outstanding dissertations in the field of East Asian Languages and Literatures, in memory of Professor Anderson for his contribution to the intellectual and pedagogical mission of the department.

PO-HSI CHEN (Adviser: Jing Tsu)
East Asian Languages and Literatures

Socialism on One Island: A Genealogy of the Pro-Unification Leftist Literary Discourse in Taiwan

This dissertation on Taiwanese literature is the first in-depth investigation of the ambiguous relation between mainland China and Taiwan. It intersects several global and local themes that are seldom seen within the space of one study: Chinese diaspora and Sinophone studies, Cold War, the plurality of different Leftisms, and Taiwan’s independence movement. It offers an important perspective on the suppressed affinity between the PRC and Taiwan after 1949.

DEWEI SHEN (Adviser: Mick Hunter)
East Asian Languages and Literatures

The First Imperial Transition in China: A Microhistory of Jiangling (369 – 119 BCE)

This study offers a radically new perspective on the emergence of Chinese empire. It synthesizes data from nearly a thousand tombs, settlement patterns for multiple city sites, and numerous transmitted and excavated texts to reveal how peoples at the margins — including widows, workmen communities, and colonial administrators — negotiated the rise and fall (and rise and fall and rise) of empire.

The Henry Prentiss Becton Prize for exceptional achievement in research is awarded to a graduate student within the Council of Engineering.

DYLAN SHAH (Adviser: Rebecca Kramer-Bottiglio)
Mechanical Engineering & Materials Science

Dylan is nominated for his contributions to the field of embodied intelligence and for his development of several robot platforms to study the role of morphology in adaptive behavior. His advisor states, “Dylan is developing functional material systems that will allow next-generation soft robots to adapt to changing tasks and environments. His research is enabling new knowledge and design paradigms to help solve broad challenges related to adaptive physical systems, with applications to human-robot interaction, collaborative robots, and assistive wearables.”

The Frances Blanshard Fellowship Prize is awarded annually for the outstanding doctoral dissertations submitted to the History of Art Department.

ARIEL FEIN (Adviser: Robert Nelson)
History of Art

Emir Patonage: George of Antioch, the Martorana, and the Arab-Christians of Norman Sicily

This dissertation gives us a new understanding of a major monument of medieval art, the church of the Martorana in Palermo, Sicily. In earlier publications, the Martorana was regarded as a major monument of Byzantine art and often cited as evidence of trends in the capital of Constantinople. While the dedication mosaic of George of Antioch, the church’s patron, was always discussed in all studies of the church, the patron, his biography, and especially his identity as an Arab Christian was not considered. Ariel Fein’s dissertation reveals a monument deeply embedded in medieval Sicily and its indigenous communities of Greek- and Arab-speaking Christians. To do so, the author examines all aspects of the decoration of the church, especially its Islamic woodcarving and stucco, connecting the
former to Fatimid Egypt and the latter to the art of North Africa immediately south of Sicily, present day Tunisia. Especially important to the analysis are the detailed investigations of the Arab and Greek inscriptions in terms of epigraphy, content, and placement. She explains how they were addressed to different audiences and thus situates the church within a larger setting. Not content with an original and pioneering study of the monument, she then charts the urban history of the quarter of Palermo in which the church is located and makes intriguing comparisons with Islamic Cordoba.

NICHOLAS ROBBINS (Advisers: Carol Armstrong and Jennifer Raab)
History of Art

Oceans of Air: Landscape and Climate in the Nineteenth-Century Atlantic World

Nick Robbins’s dissertation, Oceans of Air: Landscape and Climate, is particularly timely in that, though it focuses on Britain, the first industrial nation, it traces the origins of our present study of questions of climate back to the late eighteenth century in transregional context. Looking at British, French and American landscape painting and photography in relation to scientific discourses, seeing aesthetics and the empirical observation of clouds, rain and wind as intimately bound together, Nick Robbins has produced a radical new history of landscape imagery. He demonstrates how the work of major artists such as John Constable, as well as pioneering French photographers such as Gustave Le Grey and late-nineteenth-century trans-Atlantic figures such as James MacNeill Whistler, are imbricated within larger debates about climate and industrialization. Robbins’ pioneering research examines synergies and connections across, rather than cultural or ethnic differences between, the geographic spaces of modernity, finding in the notion of climate — the change of temperature and humidity across a long period — a paradigm that was significant for artists as well as scientists.

The Harding Bliss Prize for Excellence in Engineering and Applied Science is awarded annually to the outstanding student who has completed his or her Ph.D. thesis during the current academic year and who has done the most to further the intellectual life of the department.

RITA MATTA (Adviser: Anjelica Gonzalez)
Biomedical Engineering

The Role of Microvascular Signaling in the Neurogenic Niche

The dissertation describes novel methods and analysis of stem cell encapsulation for translational therapeutics of injured brain tissue.

The Sylvia Ardyne Boone Prize is awarded annually in memory of Sylvia Boone, a noted scholar of African art, who was the first tenured African–American woman on the Yale faculty. In her memory, Vera Wells, Yale ’71, has established a prize to honor Sylvia Boone’s life and work.

DAVID MARCELLO DE LEÓN (Advisers: Langdon Hammer, Daphne Brooks, and Marta Figlerowicz)
English Language and Literature

Epic Black: Poetics in Protest in the Time of Black Lives Matter

Mr. de León is a beautiful writer in possession of a gripping and compelling voice, and it’s that voice that delivers a project that is ultimately, at its core, a lengthy dissection of “intellectual domination” as Toni Morrison might say (pace her Playing in the Dark) and the means by which this cluster of genius Black poets (and two behemoth contemporary pop icons who serve as the bookends of the project) have gone about the business of disrupting the conditions of that domination through formalistic subversion, invagination, troublesome re-occupation. Each of the dissertation’s chapters offers an extensive and often surprising meditation on the ways that contemporary Black poets reimagine form (the epic genre) as a means to rejecting the protocols of genre study altogether.
The Dirk Brouwer Memorial Prize was established in 1966 by friends of Professor Dirk Brouwer, Chairman of the Department of Astronomy and Director of the Yale Observatory from 1941 to 1966. It is awarded to a student in the department for a contribution of unusual merit to any branch of astronomy.

Sarah Millholland (Adviser: Greg Laughlin)

Astronomy

Data-Driven Dynamics of Planetary Systems

In her Ph.D. Dissertation, Dr. Sarah Millholland describes a number of advances dedicated to the detection and characterization of extrasolar planets. Specific highlights include a new technique for identifying short-period "hot Jupiters" through their optical phase variations, as well as a conclusive demonstration that the period structure statistically observed in multiple-planet multiple-transiting systems is likely due to tidal dissipation brought on by the phenomenon of secular spin-orbit resonance.

The George Washington Egleston Historical Prize, established in 1901, is awarded annually to a research student who discovers new facts of importance for American history or gathers information or reaches conclusions which are useful from a historical, literary, and critical point of view.

Emily Snyder (Adviser: Gilbert Joseph)

History

Entangled Revolutions: Cuba, Nicaragua, and the United States in the Cold War Caribbean, 1979-1990

This is a very significant and well-crafted piece of work. A careful transnational study, it innovatively synthesizes social and diplomatic history. Imaginative research, well-written exposition, and thoughtful organization make this an outstanding thesis.

The English Department Dissertation Prize is awarded for the best dissertation submitted to the Department of English in the current year.

Wing Chun Julia Chan (Advisers: Katie Trumpener, Jill Richards, Katerina Clark)

English Language and Literature

Veritable Utopia: Revolutionary Russia and the Modernism of the British Left

In “Veritable Utopia: British Modernism and the Revolutionary Left,” Wing Chun Julia Chan assembles a modernist counter-canon, activated by the electrifying possibilities of the Soviet experiment and challenged by its vexing actualities. Her unfailingly acute, bracingly defamiliarized readings provide an expansive, often dazzling perspective on a period when revolutionary dreams became lived realities, at once gratifyingly accessible and disappointingly mundane.

The Estwing Hammer Prize is awarded by the Estwing Manufacturing company to outstanding geology or geophysics graduate students.

Meng Guo (Adviser: Jun Korenaga)

Earth and Planetary Sciences

The Excellence in Teaching Prize is given in recognition of a student's outstanding contribution to the teaching process at the Department of Earth and Planetary Sciences.

Anne Haws (Adviser: Jay Ague)

Earth and Planetary Sciences

Jack Shaw (Adviser: Pincelli Hull)

Earth and Planetary Sciences
The **Miguel Ferreyros Memorial Award** for Academic Excellence in an International Relations Joint Degree Program is awarded to the joint degree student in International Relations with the highest academic achievement.

**DOUGLAS GLEDHILL** (Adviser: Lily Sutton)
*Global Affairs and School of Management*

The **Harry Burr Ferris Prize** was established by Harry Burr Ferris (B.A. 1887, M.D. 1890), who was the E. K. Hunt Professor of Anatomy in the Department of Anatomy, the predecessor to the current Department of Cell Biology. The Prize is awarded to a Cell Biology student for a doctoral dissertation demonstrating exceptional research and scholarship.

**PEIQI LI** (Adviser: Karin Reinisch)
*Cell Biology*

*Elucidation of VPS13 and PIKfyve Proteins Functioning in the Regulation of Eukaryotic Lipid Homeostasis*

*VPS13 and related proteins function in membrane expansion and organelle biogenesis. In her dissertation work, Peiqi demonstrated that they are channels that can support bulk lipid transfer between organelles, establishing a broadly relevant, new mechanism for lipid transport in eukaryotic cells.*

**SHENLIANG YU** (Adviser: Thomas Melia)
*Cell Biology*

*Lipid Conjugation and Lipid Transport in Mammalian Autophagy*

*Cells make autophagosomes on demand to clear large toxic accumulations from the cytoplasm, but as these organelles are separated from classic membrane trafficking pathways, it has been a mystery how an autophagosome forms and grows. In his thesis work, Shenliang Yu described an entirely novel organelle biogenesis mechanism in which lipid flows from the endoplasmic reticulum into the growing autophagosome via lipid transport protein bridges.*

The **Hans Gatzke Prize** is awarded upon the recommendation of the History Department for the outstanding dissertation or dissertations in a field of European history.

**KATHLEEN MCCRUDDEN** (Advisers: Samuel Moyn, Sophia Rosenfeld)
*History*

*Fraternité, Liberté, Egalité: Sophie De Grouchy, Moral Republicanism, and the History of Liberalism, 1785-1815*

*The dissertation offers a fresh way of considering an epochal transition that continues to serve as a key reference point for a great deal of historical and political thinking. This work demonstrates a great mastery of the methodological and historiographical issues at stake in the intellectual history of the Revolution. Beautifully written and elegantly constructed, this dissertation is a brilliant achievement.*

**IEVGENIYA SAKAL** (Adviser: Paul Bushkovitch)
*History*

*The Imported Church: European Ideas and Russian Religion in the Second Half of the Seventeenth Century. The Case of the Eucharistic Controversy (1685-1690)*

*This is a major intervention in the history of Russia, Ukraine, and of early modern Europe as a whole. The implications of her discovery are considerable. An extraordinarily well-researched and crafted dissertation.*

The **Award for Academic Excellence in Global Affairs** is given to the master’s student in Global Affairs with the highest academic achievement.

**LIZ GRIESMER** (Adviser: Lily Sutton)
*Global Affairs*

The **James B. Grossman Dissertation Prize** was established in memory of a doctoral student in Psychology. It is given to the author of an outstanding Ph.D. dissertation in Psychology, with preference for research embodying some
of the characteristics of James Grossman’s scholarship, such as creativity, use of other disciplines, and clinical work with children.

**Cameron Ellis** (Adviser: Nicholas Turk-Browne)

*Psychology*

**Infant fMRI: A Model System for Cognitive Neuroscience**

The development of the human brain in infancy is of great interest, but direct observation of the brain in this critical age period has been limited. In an unprecedented series of studies, Dr. Ellis used functional neuroimaging in human infants to study the development of visual processing, the orienting of attention, and the learning of statistical regularities.

**The Mary Ellen Jones** (Ph.D. ’51, Biochemistry) Prize is awarded to the most distinguished dissertation in Molecular Biophysics & Biochemistry submitted during the academic year. Dr. Jones was a leading scientist and a pioneer in the advancement of women in academia.

**Martha Braun** (Adviser: Erdem Karatekin)

*Molecular Biophysics and Biochemistry*

**FisB Mediated Membrane Fission during Sporulation in Bacillus Subtilis**

Martha Braun discovered that the protein FisB exploits the unique geometry of the sporulating bacterium and self-oligomerization for localizing to the membrane fission site. She proposed that membrane fission is achieved by friction between the FisB network and the underlying membrane.

**Nicolle Rosa Mercado** (Adviser: Joan Steitz)

*Molecular Biophysics and Biochemistry*

**Insights into the Biogenesis of Stress-Induced Readthrough Transcripts**

Nicolle Rosa Mercado’s thesis focused on understanding how human cells modify their transcriptional programs in response to hyperosmotic stress. Specifically, Nicolle studied the molecular mechanisms leading to the production of stress-induced readthrough transcripts called DoGs (downstream-of-gene containing transcripts). Her work revealed that hyperosmotic stress leads to widespread transcriptional repression and suggests that the Integrator complex regulates the production of DoGs.

The **Annie Le Fellowship** is awarded each year to one or more Ph.D. students in the biological and biomedical sciences whose demonstrated commitment to bettering the world around them and outstanding record in research exemplify the life and career of Annie Marie Le, a Yale graduate student between 2007 and 2009.

**Catharine Shipps** (Adviser: Nikhil Malavankar)

*Molecular Biophysics and Biochemistry*

**Kathy Zhang** (Adviser: Michael Crair)

*Interdepartmental Neuroscience Program*

The **Elias Loomis Prize** is awarded for excellence in studies of physics of the earth. Elias Loomis was a professor of natural philosophy and astronomy in Yale College.

**Ulla Heede** (Adviser: Alexey Fedorov)

*Earth and Planetary Sciences*

**Yu Liang** (Adviser: Alexey Fedorov)

*Earth and Planetary Sciences*

The **James G. March award** was established in 2018 by Professor Jim March (Ph.D. ’53) and is awarded annually to an outstanding dissertation from any field of Political Science.

**Mayesha Alam** (Adviser: Elisabeth Wood)

*Political Science*

Between State Fragmentation and National Freedom: Local and International Dynamics of Secession in Comparative Perspective

This dissertation tackles a big question in Political Science - why do some secessionist civil wars succeed and others do not? – using a variety of
methodologies, including fieldwork, archival work, and interviews in Bahasa and Bengali, and qualitative comparative analysis. The result is a very rich dissertation, a major contribution to the field.

MATTHEW GRAHAM (Adviser: Gregory Huber) Political Science

Mismeasuring Misperceptions: How Surveys Distort the Nature of Partisan Belief Differences

This dissertation questions the inferences to be drawn about individual beliefs from survey data. It concludes that the apparent partisan gap in beliefs about facts, a salient concern in U.S. politics, may be exaggerated, given the uncertainty that respondents assign to their beliefs. The result is a careful and thought-provoking dissertation, which has already made important contributions to the field.

The Neuroscience Doctoral Thesis Prize was established in 2020 by Sandra and Charles Greer and is awarded annually to a graduate student in neuroscience whose Ph.D. thesis reflects the highest standards of scientific achievement.

MAXWELL SHINN (Adviser: John Murray) Interdepartmental Neuroscience Program

Time as a Bridge from Brain to Behavior

Dr. Shinn's thesis focused on analysis and modeling of behavioral choice data and neuronal recordings from the frontal eye field of monkeys. The task involved perceptual decision making, with a major twist by having the stimulus start with zero-coherence noise and the onset of useful information occurring probabilistically at several times, which gives the monkey a prior expectation of evidence timing. Dr. Shinn's research has led to major neuroscientific advances in understanding how timing expectation is used to inform the decision-making.

LEON TEJWANI (Adviser: Janghoo Lim) Interdepartmental Neuroscience Program

Uncovering Novel Roles of Glia in Neurodegenerative Diseases

Dr. Tejwani's dissertation work spanned the breadth of cellular and molecular neuroscience. In completing his Ph.D. thesis, he led projects related to the molecular substrates of multiple neurological disorders including amyotrophic lateral sclerosis, frontotemporal dementia and spinocerebellar ataxia type 1, among others. He developed a seminal longitudinal single-cell atlas of the cerebellum in spinocerebellar ataxia type 1 and in doing so uncovered transformative information for our understanding of disease pathogenesis.

The John Spangler Nicholas (Ph.D. 1921) Prize was established in 1972 by bequest of Helen Brown Nicholas in memory of her husband. The prize is awarded annually to outstanding doctoral candidates in experimental zoology.

MADELON CASE (Adviser: Carla Staver) Ecology and Evolutionary Biology

Rainfall Variability and Savanna Vegetation Dynamics

Case explored the importance of rainfall variation in establishing the distribution of savanna ecosystems, the mechanisms through which it could mediate competition between trees and grasses, and how it interacts with other important factors such as soil type, fire, and herbivory. Her work predicts that future shifts to increasingly variable, intense, and sporadic rainfall will likely cause lasting vegetation change. This dissertation was noted for its novelty and thoughtfulness and the great breadth of perspectives that Case employed to tackle her questions.

HOLLY MERTA (Adviser: Shirin Bahmanyar) Molecular, Cellular, and Developmental Biology

Analyzing the Role of ER Membrane Biogenesis in Mitotic Fidelity
CHRISTIANE OLIVERO (Adviser: Nadya Dimitrova)  
*Molecular, Cellular, and Developmental Biology*  
Identification and Characterization of the P53-Induced Long Noncoding RNA Isoform Pvt1b and Its Role in Stress-Specific Growth Inhibition via Myc Repression

ZACHARY SEBO (Adviser: Matthew Rodeheffer)  
*Molecular, Cellular, and Developmental Biology*  
Sexually Dimorphic Features of Adipose Development and Obesogenesis

The Philip M. Orville Prize was established in 1981 in memory of Philip M. Orville. The prize is awarded to graduate students in geology and geophysics in recognition of outstanding research and scholarship in the earth sciences.

ZHENG GONG (Adviser: David Evans)  
*Earth and Planetary Sciences*

JASMINA WIENMANN (Adviser: Derek Briggs)  
*Earth and Planetary Sciences*

The George Gaylord Simpson Prize was established in 1984 in honor of Professor Simpson and is awarded to graduate students and recent Ph.D. recipients for an exceptional paper concerning evolution and the fossil record.

JACK OLIVER SHAW (Advisers: Pincelli Hull and Derek Briggs)  
*Geology and Geophysics*  
Fossilization Potential of Marine Assemblages and Environments

Only a small percentage of all life that ever existed is preserved in the rock record. Some animals and environments are particularly unlikely to fossilize—e.g. soft-bodied organisms—biasing inferences about macroevolution and macroecology. We compared 20,000 modern marine assemblages with fossil occurrence data to yield a global assessment of "fossilization potential", the percentage of organisms likely to leave fossil evidence.

The Carolyn Slayman Prize in Genetics recognizes the remarkable achievements of our best students in the Department of Genetics, based on their body of work, the impact of their findings in the field of Genetics and their commitment to the Genetics Graduate Program and graduate education at Yale.

DANIEL BURKHARDT (Adviser: Smita Krishnaswamy)  
*Genetics*  
Unsupervised Machine Learning Algorithms to Characterize Single-Cell Heterogeneity and Perturbation Response

Daniel Burkhardt is recognized for his contributions to novel computational approaches that allow for differential gene expression analysis at the single cell resolution. The MELD and VFC method for which he is a lead developer can be applied in broad biomedical research areas to extract fine-grained information about diffuse effects of treatment or condition in a multitude of biomedical settings. Dan put forth a herculean effort in teaching and disseminating new computational methods and resources. He organized and taught the Machine Learning for Single Cell Analysis workshop for multiple years and worked with other students to start a community-driven Open Problems in Single Cell Biology effort. He also participates actively in the genetics graduate program, including serving on Yale Genetics Graduate Committee.

XIAO LIU (Adviser: Marc Hammarlund)  
*Genetics*  
A Functional Non-Coding RNA Is Produced from xbp-1 mRNA

Xiao Liu is recognized for her scientific independence and leadership. With a continuous feed-back between hypothesis generating biochemical studies and validation of such hypotheses with functional studies in living worms, Xiao found that in addition to being processed and translated into a protein mediating the unfolded protein response, the well-studied XBP1 mRNA can be partially processed and the resultant 3’ fragment functions as a potent regulatory ncRNA. Xiao is also a wonderful citizen of the genetics graduate program. She worked with
other graduate students to improve recruitment for the BBS program, mentored rotation and undergraduate students and served on panels to advise first year graduate students, in addition to participating in numerous other activities.

The Edwin W. Small Prize was established in memory of Edwin W. Small (B.A. 1930, M.A. 1934) and is awarded in recognition and furtherance of outstanding work in the field of American history.

EMILY SNYDER (Adviser: Gilbert Joseph)
History
Entangled Revolutions: Cuba, Nicaragua, and the United States in the Cold War Caribbean, 1979-1990

This is a very significant and well-crafted piece of work. A careful transnational study, it innovatively synthesizes social and diplomatic history. Imaginative research, well-written exposition, and thoughtful organization make this an outstanding thesis.

The Marvin B. Sussman Prize is awarded annually by the Sociology department to the graduate student whose distinguished dissertation, completed within the previous two academic years, is judged the most outstanding.

THOMAS LYTTELTON (Adviser: Olav Sorenson)
Sociology
Work, Sociability, And Inequality
Using quantitative methods Lyttelton explores the intersection of mundane sociability and the workplace. The thesis maps out why these routine friendly encounters are consequential. It goes on to unpack how patterns of association within and outside the organization vary over occupational sectors, how they shape promotion decisions and career tracks, and how they have implications for gender inequality.

The Karl K. Turekian Prize is awarded for excellence in geochemical or cosmochemical studies.

SOPHIE WESTACOTT (Adviser: Pincelli Hull)
Earth and Planetary Sciences

The 21st Century Prize is given to a graduate whose distinguished dissertation in Sociology contributes to public policy or the public interest.

TONY CHENG (Advisers: Philip Smith, Issa Kohler-Hausmann, Tracey Meares, Andrew Papachristos)
Sociology
Policing and the Illusion of Public Input

With an ethnographic exploration of police/community meetings in New York City, Cheng explores why community policing initiatives fall short. The thesis documents the implications of police organizational capacity, legal authority and interactional strategy. These enable them to curate a conservative audience, ignore many complaints and convert others into endorsements for police services, and sideline calls for more radical change.

The Colin White Prize is awarded annually to an outstanding graduate student in Public Health.

WILLIAM DUKE (Adviser: Laura Forastiere)
Public Health

The Richard Wolfgang Prize was established in 1971 in memory of Richard Leopold Wolfgang, M.A. Hon. 1962, and member of the faculty from 1956 to 1971. It is awarded each year for the best doctoral theses of graduating chemistry students.
YANG (Vicky) LUO (Adviser: Sarah Slavoff)  
Chemistry  
The Development and Application of Chemical Biology Tools to Study RNA Decapping  
Decades of studies to understand the fundamental process of gene expression have largely focused on how gene expression is turned on; much less is known about how genes are turned off. Vicky Luo developed the first chemical tools for cellular study of a human enzyme that turns off, or degrades, messenger RNAs linked to important biological processes like innate immunity.

YUESHEN WU (Adviser: Hailiang Wang)  
Chemistry  
Heterogenized Molecular Catalysts for Electrochemical Carbon Dioxide Reduction Reaction  
Yueshen Wu developed novel chemical reactions that convert environmentally concerning chemical species such as carbon dioxide and nitrate to fuels and useful chemical products using renewable electricity. These reactions are enabled by novel catalytic processes on the surface of nanostructured materials.

NAN YANG (Adviser: Mark Johnson)  
Chemistry  
Disentangling the Vibrational Spectra of Water With Cryogenic Water Clusters: From Isolated Static OH Oscillator to Temperature Dependent Spectral Dynamics  
Nan Yang envisioned, designed and built a new type of instrument for ultrasensitive chemical analysis that combines laser photochemistry with mass spectrometry. He then exploited this capability to make the first direct observations of how solvents control chemical reactions at the molecular level.

EMMANUEL LACHAUD (Adviser: Stuart Schwartz)  
History  
The Emancipated Empire: Faustin I Souloque and the Origins of the Second Haitian Empire, 1847-1859  
Lachaud has written an original and revisionist history that makes an important contribution to Haiti’s history and to the history of the Atlantic world in the mid-19th century. The dissertation fills a massive gap in the History of Haiti’s nineteenth century.

JOSHUA MENTANKO (Adviser: Gilbert Joseph)  
History  
Developing Tradition: A History of Intercultural Health Governance in Mexico, 1940-2000  
This is a highly ambitious work that makes contributions across several fields and disciplines. He is rewriting the history of global health in the twentieth century with remarkable attention to questions of culture and power. This dissertation is a fundamental contribution to the political and scientific history of Mexico, as well as a rigorous contribution situated in the history of development.

The Arthur and Mary Wright Prize is awarded upon the recommendation of the History Department for the outstanding dissertation or dissertations in the field of history outside the United States or Europe.
University Awards

The **Theron Rockwell Field Prize** was established in 1957 by Emilia R. Field in memory of her husband, Theron Rockwell Field, Ph.B. 1889. It is awarded for poetic, literary, or religious works by any students enrolled in the University for a degree. This prize is awarded by the Office of the Secretary of Yale University.

**Bench Ansfield** (Advisers: Joanne Meyerowitz and Michael Denning)

**American Studies**

*Born in Flames: Arson, Racial Capitalism, and the Reinsuring of the Bronx in the Late Twentieth Century*

Why were 1970s U.S. cities in flames? Follow the money. FIRE industries—finance, insurance, real estate—reshaped poor neighborhoods of color post-civil rights. In a richly descriptive, timely, and politically generative work, Ansfield overturns popular assumptions. The answer is race, risk, and real estate: flames arose from the financial rationality of absentee landlords and state-sponsored fire insurance, not vandalism or welfare fraud; from capitalist markets, not tenant families; in an era of infernos—towering, disco, or otherwise—the business was racially stratified indemnification not insurrection. From the embers arose new forms of urban political organizing.

The **John Addison Porter Prize**, named in honor of Professor John Addison Porter, B.A. 1842, is awarded for a work of scholarship in any field where it is possible, through original effort, to gather and relate facts or principles, or both, and to present the results in such a literary form as to make the project of general human interest. This prize is awarded by the Office of the Secretary of Yale University.

**Stefano Giovanni Daniele** (Adviser: Nenad Sestan)

**Neuroscience, MD/PhD**

*Ex Vivo Normothermic Restoration of Circulation and Cellular Functions in the Large Mammalian Brain Hours Postmortem*

Brains need blood. Cells die otherwise, and quickly. Or so we thought. Can we restore circulation and cellular activity in mammal’s brains multiple hours after death? With Daniele’s BrainEx we can. And by using this technology, we would observe various cellular functions’ resurgence in a mammal’s brain four hours after brain “death”? Minds will boggle at possible experimental and therapeutic benefits, even as Daniele is alive to bioethical imbroglios.

**Zuri Ayana Sullivan** (Adviser: Ruslan Medzhitov)

**Immunobiology**

*Food Quality Control: Nutrition and Immunity in Intestinal Homeostasis*

A gutsy work. Connecting disparate highly technical -ologies, yet clearly and conversationally, Sullivan asks fundamental questions on digestion—how animals survive through harvesting energy from their environment—and in answering establishes an entirely new area of research on the regulation of nutrition by the immune system.
The **Public Service Awards**

The **Community Service Award** honors a graduate student’s volunteer work in the local community while enrolled at Yale.

**SHANNON LESLIE** (Adviser: Angus Nairn)  
*Interdepartmental Neuroscience Program*

Shannon is a member and former director of Yale Open Labs. As a part of this group, she started a branch to bring hands-on demonstrations to off-campus events. This group partnered with Rick Crouse and the Science Haven initiative to present interactive science lessons at a variety of community events. During the pandemic these events were put on hold so the Open Labs team created Exploring Science, a weekly virtual science program that has participation by almost 100 New Haven public school students. Each week different speakers join to share their passion and path in science.

The **Disciplinary Outreach Service Award** recognizes a student who has applied specific knowledge of his or her own field in performing voluntary service within the local community.

**BRANDI WATERS** (Adviser: Stuart Schwartz)  
*History and African American Studies*

Brandi draws from her disciplinary training in her volunteer efforts with Afro-Latin American communities in the U.S. and abroad. She has facilitated programs on race and health in Latin America with students at the Universidad de Manizales (Colombia), Howard University, and in Yale’s Summer Enrichment Medical Academy. For almost a decade, she has also served as a liaison for the Diaspora team of the Network of Afro-Latin American, Afro-Caribbean, and Diaspora Women, based in Bolivia.

The **Public Scholar Award** recognizes research and activism pursued by a Yale graduate student that engages and betters the world at large.

**KRISTIN HANKINS** (Adviser: Laura Wexler and Laura Barraclough)  
*American Studies*

Kristin’s interdisciplinary doctoral research focuses on anti-litter initiatives in Philadelphia to investigate how litter and efforts to remove it have impacted urban public space from the early twentieth century to the present. She has shared relevant findings from her research with local organizations and is currently brainstorming collaborative, research-based public humanities projects with activists and artists. In addition, she continues volunteering with grassroots groups at the heart of her ethnographic fieldwork, assisting with projects such as food distribution and fundraising.
Graduating Winners of Prize Teaching Fellowship

DANIEL MARTIN  
Chemistry  
2016-17, 2017-18

NICHOLAS ROBBINS  
History of Art  
2017-18

MADELON CASE  
Ecology and Evolutionary Biology  
2020-21
DEGREES GRANTED, DECEMBER 2020 AND MAY 2021

AFRICAN AMERICAN STUDIES

Master of Philosophy
Micah Camille Jones
History
Master of Arts

Jeong Yeon Lee
English Language and Literature

Demar Francis Lewis IV
Sociology

Jocelyn Proietti
American Studies

Master of Arts
Akua Twumwaa Agyei-Boateng

Gerardo Manrique de Lara Ruiz

Leslie Rose

AFRICAN STUDIES

Master of Arts
Hector Peralta Jr.

Daniella Posy

Aanchal Saraf

Master of Arts
Mary Rebecca Reynolds

Red Lives: Grassroots Radicalism and Visionary Organizing in the American Century

Master of Philosophy
Patricia Ekpo

Master of Arts

Kelsey Elizabeth Henry

Master of Arts

Ever Esther Osorio Ruiz

Master of Arts

ANTHROPOLOGY

Doctor of Philosophy
Chandana Anusha

The Living Coast: Port Development and Ecological Transformations in the Gulf of Kutch, Western India

Chloe Li Chen-Kraus

Assessing Anthropogenic Impacts on Endangered Verreaux’s Sifaka (Propithecus verreauxi) and Prospects for Human-Lemur Coexistence

Rong Fan

Physiological Stress, Workload and Social Relations in Early Village Life Before 5000 BP: Two Case Studies of Jiahu and Beiqian

Amy Leigh Johnson

State Re-Making: Federalism, Environment, and the Aesthetics of Belonging in Nepal

Heidi K. Lam

Animating Heritage: Affective Experiences, Institutional Networks, and Themed Consumption in the Japanese Cultural Industries

Meredith Anne McLaughlin

Moral Claims: Ethics and the Pursuit of Welfare in Rural Rajasthan, India

Emily Minh Nguyen

Aalyia Feroz Ali Sadruddin  
*After-After-Lives: Aging, Care, and Dignity in Postgenocide Rwanda*

Qingzhu Wang  
*Copper Mining and Bronze Production in Shandong Province: A New Perspective on the Political Economy of the Shang State*

**Master of Philosophy**  
Elena Adasheva-Klein

Asa Sion Cameron  
Katherine Elaine Daiy  
Victoria Jane Harries  
Lav Kanoi  
*Environment*

Katherine Meier  
*Environment*

**APPLIED MATHEMATICS**

**Doctor of Philosophy**  
James Michael Garritano  
*On the Efficient Evaluation of the Azimuthal Fourier Components of the Green’s Function for the Helmholtz’s Equation in Cylindrical Coordinates*

**MD/PhD Program**  
*Master of Philosophy*

**APPLIED PHYSICS**

**Doctor of Philosophy**  
Shai Gertler  
*Photonic Signal Processing Using Nonlocal Brillouin Interactions*

Nils Thomas Otterstrom  
*Shaping Brillouin Dynamics for Silicon Photonic Device Physics*

**Master of Philosophy**  
Spencer Geller Diamond  
*Master of Science*

Alec William Eickbusch  
*Master of Science*

Yiqi Wang  
*Master of Science*

Jiaxin Yu  
*Master of Science*

Hanwen Zhang  
*Master of Science*

Yishu Zhou  
*Master of Science*

Hugo Affaticati  
Timo Kevin Christen  
Nikita Ermolaev  
Yizhi Luo  
Joseph Anthony Vidal

**ARCHAEOLOGICAL STUDIES**

**Master of Arts**  
William Charles Charamut

Brian David Fiallo

**ARCHITECTURE**

**Master of Philosophy**  
Ishraq Zahra Khan

Aaron Benjamin Tobey

**ASTRONOMY**

**Doctor of Philosophy**  
Ryan Tanner Blackman  
*Instrumentation Development for Extremely Precise Doppler Spectroscopy: Applications to Exoplanetary Science*

William Joseph Cramer  
*Analysis of the Effects of Ram Pressure Stripping on Galaxy Evolution and Star Formation through the Study of the Multiphase Interstellar Medium*
Allen Bradford Davis  
*Wobbling Towards the Future: Applications of the Radial Velocity Technique to Detect Ever-Smaller Exoplanets*

Lamiya Bintee Mowla  
*The Structural Evolution of Massive Galaxies*

Darryl Zachary Seligman  
*From the Stars: An Assessment of the Scientific Opportunities Provided by Interstellar Asteroids*

Lucas Stanley Viani  
*Improving Asteroseismic Estimates of Stellar Parameters*

**Master of Philosophy**

Samuel Harris Cabot  
*Master of Science*

Juan J Guerra  
*Master of Science*

Cheng-Han Hsieh  
*Master of Science*

Kaustav Mitra  
*Master of Science*

Imad Pasha  
*Master of Science*

**CELL BIOLOGY**

**Doctor of Philosophy**

Kevin James Hughes  
*Regulation of an RNA Repair Operon in Salmonella Enterica Serovar Typhimurium*

PeiQi Li  
*Elucidation of VPS13 and PIKfyve Proteins Functioning in the Regulation of Eukaryotic Lipid Homeostasis*

William John Lu-Culligan  
*Investigations of Novel Mechanisms of Epigenetic Regulation on Chromatin MD/PhD Program*

Nathan Nhat Nguyen  
*The Fate of the Autophagosome from Start to Finish: How do Mammalian ATG8-family and ATG4-family Proteins contribute to Macropautophagy*

John Taylor Powell  
*Development of Mechanically Complex DNA Nanodevices and a Diverse DNA Origami Toolkit for CryoEM Imaging*

Titas Sengupta  
*Neurite Placement and Synapse Formation in Layered Neuropsils*

Amanda Jane Vines  
*Live Cell Dynamics of Homology-Directed DNA Double-Strand Break Repair*

Nathan David Williams  
*DNA-Origami-Based Fluorescence Brightness Standards for Convenient and Fast Protein Counting in Live Cells*

Shenliang Yu  
*Lipid Conjugation and Lipid Transport in Mammalian Autophagy*

**Master of Philosophy**

Emma Carley  
*Master of Science*

Walker Robert Otis Fuchs  
*Master of Science*

Ian Joseph Gonzalez  
*Master of Science*

Nayoung Kwon  
*MD/PhD Program*

Philip Mannino  
*Master of Science*

Kevin Murphy Reyes Parducho  
*Master of Science*

Milind Singh  
*Master of Science*

Patreece Suen  
*Master of Science*

**CELLULAR AND MOLECULAR PHYSIOLOGY**

**Doctor of Philosophy**

Allison Leigh Brill  
*Polycystin 2 as a Regulator of Cellular and Mitochondrial Health*
Rachel Rhoades Kaspari  
Novel Insights into Hypothyroidism-Induced Metabolic and Thermogenic Adaptations

Xiruo Li  
Mechanisms by which Metaflammation and Adiponectin Regulate Glucose and Lipid Metabolism

Kun Lyu  
Diacylglycerol - PKC Epsilon - Insulin Receptor as a Key Regulatory Axis of Hepatic and White Adipose Tissue Insulin Signaling

Taylor Joseph Malone  
Gain-of-Function Mutations in Slack Potassium Channels Alter Structure, Cooperativity, and Activity-Dependent Translation

Bichen Zhang  
The Role of O-GlcNAc Transferase in Liver Fibrosis

Master of Philosophy  
Qi Wang

CHEMISTRY

Doctor of Philosophy  
David Caianiello  
Bifunctional Small Molecules that Mediate the Degradation of Extracellular Proteins

Ya-Na Chen  
Single-Molecule Force Microscopy Studies of Dronpa and Rhodopsin

Woo Young Cho  
Structural and Functional Characterization of Lipid-Derived Molecules From the Human Microbiome

Gavin Maurice Coombs  
Development of Organocatalytic Methods for the Synthesis of Axially Chiral Biaryl Compounds

Kara Joy Cutrona  
Analysis of Computational Drug Design Methods with Applications to the JAK2 Pseudokinase Domain

Amira Hanafi Dardir  
Palladium-Catalyzed Cross-Coupling and Related Reactions of Non-Classical Electrophiles Focusing on Esters

Sun Dongbang  
Asymmetric Synthesis of (-)-Naltrexone and Cobalt-Catalyzed Synthesis of Homoallylic Alcohols and Nitriles Incorporating Quaternary Carbons

Aaron Lamar Featherston  
Development of Peptide-Based Organocatalysts for Asymmetric Transformations

Katherine Jennie Fisher  
Water-Oxidation Electrocatalysis and Concerted Proton-Electron Transfer by High-Valent Complexes of Copper and Nickel

Ryan Holmes  
Studies Toward the Enantioselective Synthesis of the Gukulennin Tetraterpenoids

David Huang  
Oxidative Functionalization of Enolates and Heteroarenes Enabled by Palladium and Nickel Catalysis

Daniel Kim  
Alkene Transformations Catalyzed by Beta-Dialdiminate Cobalt Complexes

Dongyoung Kim  
Mechanistic Study of Iron Catalyzed Radical Alkene Cross-Coupling Reaction

Yin-wei Kuo  
Molecular Mechanism of Severase-mediated Microtubule Regulation

Hannah Marie Charlson Lant  
Pyridine Alkoxide Complexes of First-Row Transition Metals for Oxidative Small-Molecule Activation

Jhe-Hao Li  
Characterization of Structures and Biosyntheses of Ecologically Important Secondary Metabolites in Escherichia Coli and Xenorhabdus Species
Yang Luo
The Development and Application of Chemical Biology Tools to Study RNA Decapping

Daniel James Martin
Electrocatalytic Oxygen Reduction Using Molecular Iron Porphyrins: Detailing the Role of Electrostatics in Small Molecule Activation

Zhe Mei
Computational Studies of proteins: Void Analyses, NMR and X-Ray Structures, and Fluctuations in Protein Structure Measured Using Molecular Dynamics Simulations

Phu Khat Nwe
Decoding Gut Microbial Metabolites Through G-Protein Coupled Receptor (GPCR) Activation

Aaron Dovid Tzvi Rosenbloom
Mechanism of Actin Filament Nucleation

Nicholas Ellis Smith
Mechanistic Investigations of Iron Pincer Catalysts for the Hydrogenation and Dehydrogenation of Polar Substrates

Morgan MacKenzie Walker
Development, Application, and Mechanistic Investigation of Amine Transformations

Yueshen Wu
Heterogenized Molecular Catalysts for Electrochemical CO2 Reduction Reaction

Zishan Wu

Mengzhao Xue
Investigating the Interactions between Genotoxic Small Molecules and DNA Target: Nucleophilic Activation Mechanism Determination of (−) Lomaiviticin A, Structural and Mechanistic Elucidation of Colibactin, and Discovery of Possible Genotoxic Metabolites among Gut Microbiome.

Nan Yang
Disentangling the Vibrational Spectra of Water With Cryogenic Water Clusters: From Isolated Static OH Oscillator to Temperature-Dependent Spectral Dynamics

Helen Jiawa Zeng
Studies of Hydroxy- and Ether-Functionalized Ionic Liquids by Cryogenic Ion Vibrational Predissociation Spectroscopy

Yizhou Zhao
Allyl-Palladium Catalyzed Dehydrogenation of Carbonyl Compounds and Total Synthesis of (+)-Granatumine a and Clovan-2,9-Dione

Yiren Zhong
Surface Chemistry and Interface Design of Lithium-Sulfur Batteries

Master of Science
Jessica Elizabeth Armstrong

Samuel Bhutto

Daniel Solomon Brandes

William Edward Butcher

Matthew David Capobianco

Claire Cody

Leah Julie Connor

Laura Fei Cotter

Edward Andrew deRamon

Diondra Adia JoRuth Dilworth

Natavan Dudkina

Julian Christopher Grundler

Rong Guo

Randy Hamchand

Reagan Hooper
Rebecca Anne Howell  
Josephine Anne Jacob-Dolan  
Thien Khuu  
Hanyu Liu  
Ningyi Lyu  
Jason David Ray  
Benjamin John Guy Rousseau  
Maxim Alton Secor  
Santino James Stropoli  
Tayah Dale-Marie Turocy  
Adam Jacob Zoll

CLASSICS

Doctor of Philosophy  
Liam Thomas Ahern  
Receiving Theognis: Textual Criticism and Reception

Nick Janssen  
Appropriate Transgressions: Parody and Decorum in Ancient Greece and Rome

Lester Stephens  
Res Novae and Radial Governmentality (112–72 BCE)  
History

Master of Philosophy  
Erynn Jean-Hee Kim

Ariel Sylva Kroeber

Raymond Austen Lahiri  
Comparative Literature  
Master of Arts

Danielle Meghan Poplacean  
History

COMPARATIVE LITERATURE

Doctor of Philosophy  
Catherine Culvahouse Fox  
Christophe's Ghost: The Making and Unmaking of Tragedy in Post-Revolutionary Haiti  
African American Studies

Vaclav Gabriel Pinos  
Novels of Animal Origins: Feral and Prehistoric Fiction in England, France and Bohemia Since 1667

Iraj Sheidaee  
In Between Dār Al-Islām and the ‘Lands of the Christians’: Three Christian Arabic Travel Narratives From the Early Modern/Ottoman Period (Mid-17th–Early 18th Centuries)

Andrey Ivanovich Tolstoy  
Where Do We Go When We Go Off-the-Grid?  
Film Studies

Master of Philosophy  
Katherine Louise Kirkland  
Film and Media Studies  
Master of Arts

Maria Eugenia Pabon  
Master of Arts

Lindsay O’Connor Stern  
Master of Arts

COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

Doctor of Philosophy  
David Chang  
Natural Language Processing and Graph Representation Learning for Clinical Data

Scott Anthony Gigante  
Diffusion-Based Approaches to Visualization and Exploration of High-Dimensional Data

Xiaotong Li  
Clinical and Translational Cancer Research by Genomics and Transcriptomics Data Analysis

Kevin Lee Lopez  
Machine Learning with Multimodal Data
Quan Zhou
B Cell Clonal Lineage and Somatic Hypermutation Profiling Analysis

Master of Science
Edel Bela Aron
Egbert Castro
Alexander Thomas Grigas
Kyra Thrush

COMPUTER SCIENCE

Doctor of Philosophy
Omid Alipourfard
Change Management Systems for Seamless Evolution in Data Centers

Luciano Dyballa
The Manifold of Neural Responses Informs Physiological Circuits in the Visual System

Alexander Richard Fabbri
Text Summarization Across High- and Low-Resource Settings

Peizhen Gu
Service Abstractions for Scalable Deep Learning Inference at the Edge

Jeremie Koenig
Refinement-Based Game Semantics for Certified Components

Sarah Meredith Sebo
Developing Robot Teammates that Enhance Social Dynamics and Performance in Human-Robot Teams

Weiqi Shi
Intuitive and Accurate Material Appearance Design and Editing

Tao Yu
Learning to Map Natural Language to Executable Programs Over Databases

Mingfei Zhao
Simple vs. Optimal Mechanism Design
Master of Philosophy

Master of Philosophy
Matthew Benjamin Amodio
Ning Luo
Master of Science
Caleb Malchik
Master of Science
Shiyu Qiu
Master of Science
Yuyang Sang
Master of Science
Alexander Yi-Ren Tong
Master of Science
Jialu Zhang

Master of Science
Timothy Dean Adamson
Lizhou Cai
Yixuan Chen
Kinnari Vijay Dave
Ferhat Erata
Yiwei Hu
Ketaki Rajiv Joshi
Samuel Ethan Judson
John Miao Lazarsfeld
Kai Li
Junrui Liu
Rebecca Ramnauth
Qingyu Shen
Sihan Sun
Juncheng Tang
Sydney Anne Thompson
Nathan Tsoi
Yiyan Wei
Xiang Wu
Yiheng Wu
Jiaqi Yang
Yu Zhang
Yihan Zhou

EARTH AND PLANETARY SCIENCES

Doctor of Philosophy
Sarah Marie Arveson
Experimentally Determined Material Properties at Extreme Pressures and Temperatures: Applications to Earth's Core

Yoshinori Miyazaki
Developing a Unified Theory for the Formation and Evolution of Terrestrial Planets

Emily Mavis Stewart
Rock Metamorphism and the Global Carbon Cycle

Christopher Daniel Whalen
Macroevolutionary, Phylogenetic, and Paleocological Patterns in the Paleozoic Water Column, with an Emphasis on Fossil Vertebrates and Cephalopods

Bowen Zhao
Tropical Climate Dynamics and Oceanic Topography Effect

Master of Philosophy
Meng Guo

Master of Science
Erica Sarah Janecke Evans

EAST ASIAN LANGUAGES AND LITERATURES

Doctor of Philosophy
Po-hsi Chen
Socialism on One Island: A Genealogy of the Pro-Unification Leftist Literary Discourse in Taiwan

Simone Theresia Glasl
In the Place of Others: Sympathy in Modern Chinese Literature and Literary Criticism from the 1910s to the 1950s

Noriko Morisue
Amateurism in the Rise of Small-Gauge Film Technology: Modernity, Popular Culture, and the Everyday, 1923-1945

Film Studies

Jeffrey Scott Niedermaier Jr.
The Poetics of Elsewhere: The Wakan Rōeishū Beyond Japan and China

Dewei Shen
The First Imperial Transition in China: A Microhistory of Jiangling (369 – 119 BCE)

Master of Arts
Adam Dante Haliburton

EAST ASIAN STUDIES

Master of Arts
Kwun Chung Law

Tsun Yin Leung

Jingwen Li

Duan Ying Denise Looi

Dylan Zane Siegel

Xiumin Su

Xinru Wang

Yuhan Wang
ECOLOGY AND EVOLUTIONARY BIOLOGY

Doctor of Philosophy
Madelon Florence Case
Rainfall Variability and Savanna Vegetation Dynamics

Stephen John Gaughran
Patterns of Adaptive and Purifying Selection in the Genomes of Phocid Seals

Erica Marie Holdridge
Mechanisms of Resource Competition With Intraspecific Variation

Daniel MacGuigan
Hybridization and Speciation Across Multiple Temporal Scales in Darters (Percidae: Etheostomatinae)

Evlyn Sadie Pless
Gene Flow and Landscape Genetics of the Dengue Vector, Aedes Aegypti, in North America

Samuel Spencer Snow
Mechanisms and Implications for Evolution via Sexual Conflict Over Mate Choice

Anna Christina Vinton
How Eco-Evolutionary Interactions Mitigate Climate Risk: A Theoretical Perspective

Siyang Xia
Evolution of Oviposition in Aedes aegypti in Forest and Domestic Habitats in Africa

Master of Science
Anri Chomentowska

Jasmine Lianne Mah

Liam Ulysses Taylor

ECONOMICS

Doctor of Philosophy
Daisuke Adachi
Essays in Automation and Globalization

Marianne Bernatzyk Koehli
Essays on Labor Economics

Shuosong Chen
Essays in Behavioral Finance and Asset Pricing

Chuan Du
Essays on Financial Intermediation and Collateral Requirements

Jian Xin Heng
Essays in Network Economics

Soonwoo Kwon
Essays on Robust Methods in Econometrics

Ming Li
Essays on Panel and Network Modeling

Xiangliang Li
Essays on Game and Economic Theory

Nils Martin Mattsson
Essays on the Effects of Institutional Changes

Kritika Narula
Essays on the Economics of Education and Health in Developing Countries

Eduardo Pinheiro Fraga
Essays in International Trade

Marcos Ribeiro Frazao
Essays on Geography and Firm Dynamics

Soumitra Shukla
Rookie Market: Unpacking the Black Box of Firm-Worker Matching

Suk Joon Son
Essays in Industrial Organization and the Economics of Education

Thi Hai Yen Tran
Essays on the Economics of Health Care Payment Reforms

Io Kuan Vong
Essays on Dynamic Games
Yuzhou Wang  
*Essays in Industrial Organization*

Lucas Zavala  
*Competition in Global Value Chains*

Ge Zhang  
*Essays on a Consumer Subsidy With Firms’ Bidding*

Zhengren Zhu  
*Essays on the US Higher Education System*

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**Master of Philosophy**

Haoge Chang  
*Master of Arts*

Hanxiao Cui  
*Master of Arts*

William Steadson Damron

Mirco Dinelli  
*Master of Arts*

Tan Gan  
*Master of Arts*

Anisha Grover

Nghiem Quang Huynh

Sang Rae Kim

Changhyun Kwak

Masaki Miyashita  
*Master of Arts*

Antonia Beatriz Paredes Haz

Hiroki Saruya

Jintaek Song

Anthony Elias Tokman  
*Master of Arts*

Joao Paulo Valente

Stephan Wolfgang Waizmann

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Trevor Colton Williams

Fan Wu  
*Master of Arts*

Tianhao Wu

**Master of Arts**  
Francesco Beraldi

Pedro Miguel Casavilca Silva

Venkatasai Ganesh Karapakula

Matthew Ian Schwartzman

**ENGINEERING AND APPLIED SCIENCE**

**Biomedical Engineering**

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**Doctor of Philosophy**

Amanda Frances Alexander  
*Investigating the Regulation and Consequences of Cell-to-Cell Heterogeneity in the TLR4-Induced Macrophage Secretion Response*

Siyuan Gao  
*Latent Factor Analysis of High-Dimensional Brain Imaging Data*

Allison Marie Greaney  
*Improvements in Pulmonary Tissue Engineering: Toward Functional Tracheal and Lung Replacements*

Edward Xu Han  
*Development of a Bioartificial Vascular Pancreas for Type 1 Diabetes Treatment*

Heather Liu  
*Kinetic Modeling, Parameter Estimation and Model Comparison in PET: Functional Images of Neurotransmitter Dynamics and Drug Affinity*

Rita Matta  
*The Role of Microvascular Signaling in the Neurogenic Niche*

Micha Sam Brickman Raredon  
*Single-Cell Systems Engineering of Alveolar Lung MD/PhD Program*
Lorenzo Rakesh Sewanan  
*Investigating the Multiscale Mechanobiology of Hypertrophic Cardiomyopathy*  
MD/PhD Program

Luyao Shi  
*Advanced Quantitative Cardiac Nuclear Imaging*  

Jason Michael Szafron  
*Mathematical Models for Improved Design of Tissue Engineered Vascular Grafts*  

John James Walsh  
*Surveilling the Distinctive Vascular and Metabolic Features of Tumor Progression and Response to Therapy*  
MD/PhD Program

**Master of Philosophy**  
Shawn Ahn  
*MD/PhD Program*  
*Master of Science*

Adil Irtiza Akif  

Kathryn Helen Bridges  

David Dellal  

Laura C. Morales  
*Master of Science*

Ryan Nguyen  
*Master of Science*

Daniel Hyungseok Pak  
*Master of Science*

Chunxiao Ren  

Kartiga Selvaganesan  
*Master of Science*

Xingbo Shang  
*Master of Science*

Shi Shen  
*Master of Science*

Wendy C. W. Sheu

Graham Su  
*Master of Science*

Alexandra Ahova Suberi  
*MD/PhD Program*  
*Master of Science*

Haoyu Tang  
*Master of Science*

**Master of Science**  
Xueqi Guo  

Saiti Srabonti Halder  

Hyun-Je Kim  

Wenjing Luo  

Xiaoyu Qin  

Wanyun Tao  

Nikhil Trehan

**CHEMICAL AND ENVIRONMENTAL ENGINEERING**

**Doctor of Philosophy**  
Douglas Mitchell Davenport  
*High-Pressure Reverse Osmosis for Energy-Efﬁcient Desalination of Hypersaline Brines*

Jenna Caroline Ditto  
*High Chemical Resolution Investigations into the Composition, Evolution, and Properties of Complex Multiphase Organic Compound Mixtures in the Atmosphere*

Mark Falinski  
*Advancing Safe, Sustainable, and Functional Nanomaterial Selection and Design: Optimizing Carbon Nanotube Properties for Limited Toxicity and Enhanced Energy Storage*

Camrynn Leigh Fausey  
*Nanotechnology Design and Environmental Modeling in Tackling Contaminants of Global Concern*
Yulian He  
*Transition Metal Oxide Nanostructures in Heterogeneous Catalysis*

Peeyush Khare  
*Understanding the Increasing Influence of Non-Combustion Sources on Urban Air Quality*

Travis Reed Miller  
*Environmental Assessments of Capital-Intensive Product Systems*

Matthew Jacob Montgomery  
*Analyzing the Effect of Fuel Nitrogen on Soot Formation*

Ratanachat Racharaks  
*The Development and Demonstration of*  
*Synechococcus elongatus UTEX 2973 as a Potential Chassis for Metabolic Engineering*

Eric Christian Ryberg  
*Edible Dye-Sensitizers for Water Disinfection and Safety Indication*

Evyatar Shaulsky Sr.  
*Thermal-Based Membrane Processes for Energy and Water Production*

Roger Sheu  
*Indoor Gas- and Particle-Phase Organic Compounds: High-Resolution Instrumentation to Study Emissions, Concentrations, and Dynamics*

Min Jeong Suh  
*Adsorption-Photocatalysis Composite Nanomaterial: Harnessing Sunlight for Sustainable Regeneration of Spent Adsorbent*

Kristof Toth  
*Directed Self-Assembly of Block Copolymer Thin Films by Electrospay Deposition for Heterolattice Formation and Compositonally Gradient Libraries*

**Master of Science**  
Darryl Marissa Angel  
Andreas Jan Thomas Backhaus  
Yan Du

Taylor Tonya Hedtke  
Jennifer Kali Rigby  
Brian Andrew Shoemaker  
Yazhen Xue  
Xiaowei Zhang

**ELECTRICAL ENGINEERING**

**Doctor of Philosophy**  
Lin Chen  
*Online Optimization: Convex and Submodular Functions*

Bingchen Deng  
*Widely Tunable Infrared Devices Based on Graphene and Black Phosphorus*

Daniel Roger Fullmer  
*Distributed Computation of Common Fixed Points over Time-Varying Graphs*

Yichen Jia  
*Spin-Dependent Quantum Transport in Epitaxial BaTiO3-Germanium Tunnel Junctions*

Lili Wang  
*Problems in Distributed Computation and Estimation*

Wen Wang  
*Hardware Architectures for Post-Quantum Cryptography*

Na Zhu  
*Integrated Cavity Magnonics*

**Master of Science**  
Siyuan Dong  
Guangyu Peng  
Isuri Bimsara Ratnayake  
Xiayuan Wen  
Chenyu You
MECHANICAL ENGINEERING AND MATERIALS SCIENCE

Doctor of Philosophy
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Bulk Metallic Glasses Structure and Properties
Investigated by Scanning Probe Microscopy

Kevin Gleason
Soot Formation in High-Pressure Counterflow Flames

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Prototypical Arm Motions From Human Demonstration for Upper-Limb Prosthetic Device Control

Sebastian Alexander Kube
High-Throughput Experimental Strategies: The Highway to New Complex Alloys and Understanding Complex Phenomena

Rodrigo Miguel Ojeda Mota
Stretching the Limits in Thermoplastic Forming of Bulk Metallic Glasses

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Computational Studies of the Protocol-Dependent Mechanical Properties of Granular Materials

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Random Walks in Bacteria: Diffusion and Chromosome Folding

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Study of Surface Physical and Chemical Processes Through Scanning Probe Microscopy and Other Surface Science Methods

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"Because So It Is Made New": D. H. Lawrence's Charismatic Modernism

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Adaptive Mechanisms of Drug Resistance in Brain Metastasis
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Genetic Dissection of Local and Systemic Responses in States of Perturbed Iron Balance

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Adan De La Rosa Codina
Identification of Tumor Immune Regulatory Factors Using High Throughput CRISPR Screening
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Genomic Analysis of Rare Human Diseases
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HtsRC-mediated Accumulation of F-actin Regulates Ring Canal Size During Drosophila Melanogaster Oogenesis
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*Early SHH-Dependent Telencephalic Patterning Disruptions in Tourette Syndrome*

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*A Tale of Two Nanowires: The Biochemical and Spectroscopic Characterization of the Conductive Cytochrome OmcS and OmcZ Filaments of Geobacter Sulfurreducens*
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Reversible Peptide-Protein Interactions Inside Cells:
Enabling a New Approach for Achieving Super-
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Co-Transcriptional Splicing in Murine
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Insights Into the Biogenesis of Stress-Induced
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A Comparative Approach to Studying RNA
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Activates Abl2 Through Direct Binding and
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Analysis of the Regulation of Transcriptional Noise
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Discovery and Validation of Riboswitches and Other
ncRNAs in Over 50 Bacterial Genomes

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Analyzing the Role of ER Membrane Biogenesis in
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Identification and Characterization of the P53-
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Its Role in Stress-Specific Growth Inhibition via
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Sexually Dimorphic Features of Adipose
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Investigation of Long Noncoding RNAs in the P53
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Genetically Encoded Biomaterials: Design,
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Effects of Dietary Fats on Mechanisms of Adipose
Expansion and Function
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**BIOGRAPHIES**

**PETER SALOVEY** is the twenty-third president of Yale University and the Chris Argyris Professor of Psychology. Since becoming president in July 2013, he has led the development of new programs and facilities, strengthened partnerships worldwide, increased access to a Yale College education, and enhanced multidisciplinary collaboration and entrepreneurial opportunity for faculty and students. Other roles at Yale included serving as chair of the Department of Psychology (2000 to 2003); dean of the Graduate School of Arts and Sciences (2003 to 2004); dean of Yale College (2004 to 2008); and provost (2008 to 2013).

President Salovey earned a Ph.D. in Psychology at Yale in 1986. He has authored or edited over a dozen books translated into eleven languages and published hundreds of journal articles and essays in social psychology. With John D. Mayer, he developed a broad framework called “emotional intelligence.” In addition to teaching and mentoring scores of graduate students, President Salovey has won both the William Clyde DeVane Medal for Distinguished Scholarship and Teaching in Yale College and the Lex Hixon ’63 Prize for Teaching Excellence in the Social Sciences. In 2013, he was elected to the American Academy of Arts & Sciences and the National Academy of Medicine.

**LYNN COOLEY** is the C.N.H. Long Professor of Genetics and Professor of Cell Biology and Molecular, Cellular and Developmental Biology and has served as the Dean of the Graduate School since 2014. In addition to serving as Dean, she was appointed Vice Provost for Postdoctoral Affairs in February 2021.

Dean Cooley received a Ph.D. in Chemistry from UT Austin in 1984 for dissertation research on tRNA transcription and processing conducted in the laboratory of Dieter Söll at Yale University. After postdoctoral training at the Carnegie Institution for Science, she joined the faculty of the Genetics Department at Yale School of Medicine in 1989. Dean Cooley’s current research is focused on understanding the function of intercellular bridges that connect germ line cells during their development into eggs or sperm and on the regulated production of unexpectedly long proteins in specific tissues. Before becoming Dean of the Graduate School, she directed Yale’s Combined Program in Biological and Biomedical Sciences (BBS) from 2001–2014.

**AKIKO IWASAKI** received her Ph.D. from the University of Toronto, and her postdoctoral training from National Institutes of Health, before joining Yale’s faculty in 2000. She is a Waldemar Von Zedtwitz Professor of Immunobiology; Molecular Cellular & Developmental Biology; Dermatology; and an Investigator at Howard Hughes Medical Institute. She has received awards and honors, including the Burroughs Wellcome Fund Career Award in Biomedical Sciences, the Wyeth Lederle Young Investigator Award, the BD Biosciences Investigator Award, and the Seymour & Vivian Milstein Award for Excellence in Interferon and Cytokine Research. She was elected to the National Academy of Sciences in 2018, and to the National Academy of Medicine in 2019. Dr. Iwasaki is also well known for her Twitter advocacy on women and underrepresented minorities in the science and medicine fields.
Professor Iwasaki’s research focuses on the mechanisms of immune defense against viruses at mucosal surfaces, which are a major site of entry for infectious agents. Professor Iwasaki’s research group developed a new vaccine strategy, termed “Prime and Pull,” that can be used to treat those infected with virus, unlike many vaccines that are given preventatively. Currently, Professor Iwasaki is directing translational immunology team to investigate the role of immune response in COVID-19 disease outcome. She also co-directs the IMPACT (Implementing medical and public health actions against coronavirus in Connecticut) team to generate an extensive biorepository for specimens to support the studies of COVID infection and immunity.

SHARON KUGLER became the seventh University Chaplain to Yale in July of 2007. She came to New Haven from Johns Hopkins University in Baltimore, where she had served as the University Chaplain since 1993. Chaplain Kugler has three decades of experience in ministry in higher education, interfaith collaboration, pastoral and social ministry. Her main focus at Yale is to further cultivate a chaplaincy for students, faculty and staff which defines itself by serving the needs of the richly diverse religious and spiritual traditions on campus allowing for deeper dialogue, increased accessibility, personal growth, creative educational opportunities and pastoral leadership.

Chaplain Kugler is the past president of both the National Association of College and University Chaplains (NACUC) and the Association of College and University Religious Affairs (ACURA). She received her Master’s degree from Georgetown University and is a member of the Theta Alpha Kappa National Honor Society for Religious Studies and Theology. She has received honorary doctorates from Fairfield University, Santa Clara University and St. Joseph College in Connecticut. Chaplain Kugler is a lecturer at the Yale Divinity School, where she teaches a course on college and university chaplaincy.
THE SHIELD OF THE GRADUATE SCHOOL OF ARTS AND SCIENCES

The design for the Graduate School shield was drawn by Yale art professor Theodore Sizer and approved by the University. Four themes are symbolized in the arms of the School. The background of the “chief” (the place of honor) is Yale blue, with Roman numerals in white representing 1847, the year of the founding of the Department of Philosophy and the Arts, the earliest formal organization for graduate study at Yale and, in fact, in the entire United States. Below, on a white background, is a black Y-shaped device representing the “pallium,” a garment worn by philosophers in ancient Rome, and frequently used as a symbol for Yale. The three red crosses are derived from the arms of Bishop George Berkeley, who established in 1732 an endowment for Yale College graduates “reading for the second degree.” These were the first scholarships exclusively for graduate study at Yale.

THE MACE OF THE GRADUATE SCHOOL OF ARTS AND SCIENCES

The mace is carried at the head of ceremonial processions by the School’s marshal and displayed at such events as the annual Matriculation ceremony, awards Convocation, and Commencement.

The shaft of the mace is turned red mahogany. Inset near the top of the shaft on two sides is the shield of the Graduate School, rendered in cloisonné-enameled metal. For description of the shield, see above. The shaft is topped by a disk of grained red and black macasser ebony, on which sits a large, faceted crystal orb, the chief design element of the mace. The orb symbolizes several characteristics of advanced study in the arts and sciences. The global shape suggests the ambition of advanced study to be comprehensive in its inquiry. The transparent clarity of the fine Austrian lead crystal of which the orb is made alludes to the motto of Yale University, Lux et Veritas, and to the enlightenment that scholars seek in their research and teaching. Finally, the many facets of the orb symbolize the complexity of advanced learning in the arts and sciences and the importance of approaching its subjects from many intellectual directions.

In addition to the large ceremonial school mace described above, there are four smaller maces that are carried by faculty and staff marshals. These marshals’ batons each have a similarly turned shaft of mahogany. At their tops is a single enameled shield.