



# HAVERFORD COLLEGE

*One Hundred Eighty-Fifth  
Commencement*

Saturday, May 13, 2023



# Welcome, friends.

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# ORDER OF EXERCISES

## Processional

All who are able are requested to stand during the processional.

The Marshals

The Candidates for Degrees

Members of the Board of Managers

Members of the Haverford College Senior Staff and Bryn Mawr College Cabinet

The Faculty

The Platform Party

*The Faculty Marshal*

*The Hooding Marshal*

*The Dean of the College*

*The Opening Speaker*

*The Alumni Speaker*

*The Honorary Degree Presenter*

*The Candidate for an Honorary Degree*

*The Secretary of the Board of Managers*

*The Provost*

*The President of Bryn Mawr College*

*The President of the College*

## Welcome From the President

Wendy E. Raymond

## Opening Remarks

Talia Young, *Visiting Assistant Professor of Environmental Studies*

## Remarks From the Class of 2023

Athena Intanate

## Remarks From the Alumni

Beverly Ortega Babers, Esq. '84, *President, Alumni Association Executive Committee*

## Greetings From Bryn Mawr College

Kimberly Wright Cassidy, *President and Professor of Psychology*

## Remarks From the President

Wendy E. Raymond

## Conferring of an Honorary Degree

Joan Cannady Countryman, *Civil Rights and Education Advocate*

Presented by Alice Lesnick, *Director, Bryn Mawr/Haverford Education Program*

## Conferring of Degrees

Class presented by Linda Strong-Leek, *Provost, Professor of African and Africana Studies, and Professor of Gender and Sexuality Studies*

Candidates presented by John McKnight, *Dean of the College*

## Closing Remarks From the President

Wendy E. Raymond

## Recessional

### Marshals

Ingrid Arauco, *The Ruth Marshall Magill Professor and Professor of Music*

Laura Been, *Assistant Professor of Psychology*

John Dougherty, *Associate Professor of Computer Science*

Andrew Friedman, *Associate Professor and Chair of History*

Rachel Hoang, *Associate Professor of Biology*

Alexander Norquist, *Professor and Chair of Chemistry*

Anne Preston, *The John Hurford Professor and Professor and Chair of Economics*

Zainab Saleh, *Associate Professor and Chair of Anthropology*

Jeffrey Tecosky-Feldman, *Senior Lecturer of Mathematics and Statistics*

Helen White, *The William H. and Johanna A. Harris Professor in Environmental Studies and Chemistry, Professor of Chemistry and Environmental Studies, and Associate Provost for Curricular Development and Research*

Kelly Gavin Zuckerman, *Visiting Assistant Professor of Education*

Nathan Zullinger, *Hoarding Marshal, Assistant Professor of Music, and Director of Choral and Vocal Studies*

## Music for Processional and Recessional

Brass Ensemble: Jon Fowler, *tuba*; Jon Clark, *horn*; Ed Jakubowski and Alex Schmauk, *trumpets*;

Brad Ward, *trombone*

## HONORARY DEGREE RECIPIENT

Since 1858, Haverford has awarded honorary degrees in recognition of those whose lives and work speak of the College's mission and values. Honorees are selected by a committee of students, faculty, staff, and alumni representatives; the number of recipients each year varies. This year, at the 185th Commencement ceremony, the College awards an honorary degree to Joan Cannady Countryman, an iconic figure in civil rights and education in Philadelphia and beyond, in recognition of her service to humanity.



*Joan Cannady Countryman*

### **Joan Cannady Countryman**

The first African American graduate of Germantown Friends School (GFS), in 1958, Joan Cannady Countryman is a Quaker activist and educator committed to the struggle for a better world. After undergraduate study at Sarah Lawrence College, she earned a graduate degree in urban planning from Yale University and pursued a Fulbright scholarship at the London School of Economics. The early '60s also brought involvement in the Northern Student Movement, a group founded by her husband, Peter Countryman, to, in her words, "persuade college campuses to support the southern student civil rights movement and to educate northern students about racial disparities in their own communities. Many of us on New England campuses, well aware of the sit-ins in the south, were hungry to be part of the new movement."

Countryman would go on to teach mathematics at GFS for 23 years, before her work as a teacher and administrator—as head of school at the Lincoln School in Rhode Island—led to her role in creating the Oprah Winfrey Leadership School for Girls in South Africa.

A former member of the Board of Managers at Haverford, she has also served as Clerk of the Corporation of the College and, more recently, has spoken out about the advantages of city living for older people while creating communities where residents can age in wise and healthy ways.

# PRIZES, AWARDS, AND FELLOWSHIPS

## Anthropology

Presented by the Department of Anthropology

### *The Wyatt MacGaffey Thesis Award in Anthropology*

This award honors the professor emeritus of Haverford's anthropology department and recognizes one or more outstanding senior theses in anthropology.

**Naren Sebastian Roy and Cathy Zhu**

## Athletics

Presented by the Department of Athletics

### *The A. W. "Pop" Haddleton Award*

Named in honor of the longtime track coach at Haverford, this award recognizes an outstanding contribution to an athletic team by a student who epitomizes perseverance, dedication, and loyalty, and who has not received the recognition that, for example, regular starting players do.

**Nathan Wesley Rose**

### *The Gregory Kannerstein 1963 Award*

Awarded to one or more students whose combination of outstanding athletic achievement and leadership has been a significant factor in a team's competitive success, and whose levels of performance have brought distinction not only to the individual and their team but also to the entire athletic program.

**Katharine Graham Ference, Abigail Tommy Marquis, Jamie Moreland, and Jahsaiah Chozen Noel Moses**

### *The Stephen G. Cary 1937 Award*

Given in honor of Haverford alumnus Stephen G. Cary 1937, this award recognizes overall impact on the Haverford athletic program.

**Celia Avery Page and Kaila Uyeda**

### *The Varsity Cup*

Haverford's highest athletic award, presented annually to one or more outstanding athletes in the senior class. The criteria for selecting honorees are athletic accomplishment, sportsmanship, and leadership throughout the students' careers.

**Ryan G. Kredell and Kayla Michelle Robinson**

### *The William W. Ambler 1945 Award*

Awarded to the graduating senior varsity athlete on the list of nominees who has the highest cumulative grade-point average through seven semesters of college work.

**Nathan Wesley Rose**

### *The William Docherty Award for Sportsmanship in Intramural Basketball*

Nominated by the referees, this prize winner has shown good sportsmanship and enthusiasm for basketball while completing both Intramural Basketball quarters.

**Yiping Hou 2024**

## Biology

Presented by the Department of Biology

### *The Ariel G. Loewy Prize for Senior Research in Biology*

Established in 2001 in memory of Ariel G. Loewy, professor of biology from 1953 to 2000, this prize is given to one or more graduating seniors in biology whose efforts and accomplishments incorporate the rigor and diligence of experimental science.

**Diego Capcha, Oscar D. Garrett, Natalie Rose Olivieri, and Nathan Wesley Rose**

### *The Irving Finger Prize in Biology*

Established in 2003 by family, friends, and alumni in memory of Irving Finger, professor of biology from 1957 to 1994, this prize is awarded to one or more graduating seniors in biology for outstanding growth and accomplishment in the major.

**Michelle Mae Soberano Panaguiton, Rubí Samanta Rivas Guamán, and Olivia Lilikalani Yoshida**

### *The Marian E. Koshland Prize in Biology*

Established in 1997 by biology faculty, College administrators, and Board members, the prize is awarded to one or more graduating seniors who demonstrated outstanding performance in senior research.

**Allison Elizabeth Dockman, Megan ViHan Heflinger, and Ivan Atilano Ruiz**

## **Center for Peace and Global Citizenship**

Presented by the Center for Peace and Global Citizenship

### *Center for Peace and Global Citizenship Publicly Engaged Scholar Award*

Established in 2019, this award recognizes knowledge production and dissemination that advances peace, social justice, and global citizenship. Preference is given to seniors who have demonstrated capacity to communicate concisely about their research to diverse audiences. Special consideration is given to research questions that emerge through relationships with organizations and networks advancing justice.

**Natasha Bansal**

## **Chemistry**

Presented by the Department of Chemistry

### *The American Chemical Society Prize for Scholastic Achievement*

Given to the top-ranking senior major in chemistry.

**Christina Maye McBride**

### *The Colin F. MacKay Prize*

Endowed in honor of Professor MacKay by Garth R. Parker Jr. 1981 and the Rohm and Haas Company. This prize recognizes a member of the senior class majoring in chemistry who has shown the greatest intellectual growth over four years of work in the chemistry department.

**Davion Marquise Williams**

### *The George Peirce 1903 Prize in Chemistry*

Named in honor of George Peirce 1903 by his parents, Harold and Charlotte C. Peirce.

**Caroline Slusar Smith**

### *The Lyman Beecher Hall Prize in Chemistry*

Awarded to a graduating senior for outstanding accomplishment in the major coursework and in research.

**Nicholas Bayan Mostaghim**

## **Classics**

Presented by the Department of Classics

### *The Class of 1896 Prize in Latin for Sophomores*

Awarded to the sophomore who has done the best work in the department.

**Chaitan Wong 2025**

### *The Class of 1902 Prize in Latin for First-Years*

Awarded to the first-year who has done the best work in the department.

**David Dai 2026**

### *The Daniel Gillis and Joseph Russo Prize*

Awarded for the best essay in classical studies.

**Celine Pak**

### *The Howard Comfort Prize in Latin*

**Nico Tripeny**



*The Mark L. Hepps 1979 Prize*

Awarded in memory of Mark Larry Hepps 1979, this prize is awarded for diligence in the study of elementary Latin.

**Sarah Weill-Jones 2026**

*Society for Classical Studies Outstanding Student Award*

Awarded annually to the Haverford student who made the most distinguished contribution to the study of classics at Haverford, this award is presented by the Haverford faculty under the auspices of the Society for Classical Studies.

**Alexander Jacob Neuschotz**

*The William W. Baker Prize in Greek*

**Celine Pak**

**College Fellowships**

Presented by the Faculty

*The Clementine Cope Fellowship*

Given in honor of Thomas P. Cope, a former member of the Board of Managers, this fellowship and these prizes are to be used for graduate study at another institution.

*Fellowship:* **Karla Sofia Garcia 2021**

*Prizes:* **Tomás Aramburu 2019** and **Ngoc “June” Hoang 2021**

**Comparative Literature**

Presented by the Department of Comparative Literature

*The Laurie Ann Levin Prize*

Awarded to the senior major whose work merits recognition for intellectual achievement.

**Celine Pak**

**East Asian Languages & Cultures**

Presented by the Bi-College Department of East Asian Languages & Cultures

*The Margaret Mayeda Petersson Prize in Asian Studies*

Awarded to a senior major in recognition of achievement in the study of East Asia.

**Wenyun Wang**

**Economics**

Presented by the Department of Economics

*The Holland Hunter 1943 Economics Department Thesis Prize*

Awarded to the senior whose thesis displays the most outstanding empirical and/or theoretical applications of economics.

**Nathan Kenneth Haberman McGinty**

*The Michael M. Weinstein Prize in Economics*

Established in 1986.

**Rishabh Golchha**

**English**

Presented by the Department of English

*The Ian Walker 1950 Prize Fund in English*

Established by family, friends, and classmates of Ian Walker 1950, this prize is awarded to a Haverford junior or senior majoring in English.

**Nicholas Frank Lasinsky**

*The Newton Prize in English Literature*

Awarded on the basis of final honors in English.

**Reese Yau**

*The Terry M. Kreiger 1969 Memorial Prize*

Awarded to the senior demonstrating the greatest achievement in writing during the junior and senior years.

**Michiko Ng**

*The William Ellis Scull 1883 Prize*

Awarded to the junior or senior who has shown the greatest achievement in voice and expression of the English language.

**Sophia Honigfeld**

**Environmental Studies**

Presented by the Department of Environmental Studies

*Environmental Engagement Award*

Awarded to graduating seniors who demonstrate outstanding dimensions of environmental engagement and interdisciplinarity, with particular emphasis on crossing or combining modes of inquiry; demonstrate boldness, braveness, and community engagement; and exemplify love and commitment to working with people as well as with land, animals, plants, and other non-human life beyond campus boundaries.

**Ebony E. Graham and Charlie Burke Mamlin**

**History**

Presented by the Department of History

*The History Department Senior Thesis Prize*

Awarded in recognition of the senior project that best exemplifies the passion, commitment, and professionalism of the historical enterprise.

**Rhea Jay Chandran**

*The Samuel Parry Lippincott 1886 Prize in History*

**Jessica Lauren Israel and Catherine Grace Tomson**

*The Senior History Prize*

Awarded in recognition of achievement in the study of history.

**Nicolas Frank Lasinsky and Ella Beatrice Namour**

**Latin American, Iberian, and Latinx Studies**

Presented by the Department of Latin American, Iberian, and Latinx Studies

*The Gridley McKim-Smith Senior Research Prize*

The Gridley McKim-Smith Senior Research Prize is awarded by the Haverford, Bryn Mawr, and Swarthmore Programs in Latin American, Iberian, and Latinx Studies. It recognizes the achievements of students whose scholarship demonstrates the intellectual rigor and interdisciplinary breadth notable throughout Gridley McKim-Smith's illustrious career in the Bryn Mawr Art History Department.

**Juliana Mendes Brinn, Fabiola Francisca Martinez Cabrera (Bryn Mawr College), and**

**Higinia Flores Rosas (Bryn Mawr College)**

**The Libraries**

Presented by the Libraries Staff

*The Libraries Research Award*

Recognition for exceptional research in the thesis.

**Celine Pak**

## **Linguistics**

Presented by the Tri-Co Department of Linguistics

### *The Linguistics Prize in Linguistic Theory*

Awarded to the senior whose thesis best addresses theoretical issues in linguistics.

**William Ball**

### *The Linguistics Prize in Descriptive Linguistics*

Awarded to the senior(s) whose thesis best addresses descriptive issues in linguistics.

**Caroline Gihlstorff and Jasper Nash**

### *The Linguistics Prize in an Experimental Topic*

Awarded to the senior whose thesis best addresses experimental issues in linguistics.

**Ella Wei (Swarthmore College)**

## **Marian E. Koshland Integrated Natural Sciences Center**

Presented by the Departments of Biology and Chemistry

### *The Arnold and Mabel Beckman Foundation Award*

Recognizes one or more outstanding undergraduate students in chemistry and biological sciences.

**Oscar D. Garrett and Christina Maye McBride**

## **Mathematics**

Presented by the Department of Mathematics and Statistics

### *Class of 1896 Prize in Mathematics*

Awarded to the sophomores who have done the best work in the department.

**Sophie Gardiner and Samuel Evan Ross**

### *The Department Prize in Mathematics for First-Year Students*

Awarded to the first-year student(s) who received the highest score on the annual math prize exam.

**Will Bender 2026 and Hongyi Zhang 2026**

### *The Mathematics and Statistics Senior Thesis Prize*

Awarded in recognition of the senior projects that best exemplify commitment, independence, and clarity of mathematical or statistical exposition.

**Benjamin Zbar Meyers, Alfredo Rafael Ortiz de la Rosa, and Bianca Carmelita Teves**

## **Music**

Presented by the director of the Chamber Music Program

### *The Sylvia Glickman Chamber Music Prize*

The Sylvia Glickman Chamber Music Prize is awarded to the top graduating seniors who were enrolled in the Bi-College Chamber Music Program throughout the duration of their tenure at Haverford College. This award honors the seniors who have displayed leadership, commitment, innovation, and improvement during their tenure in the program.

**Margaret Adger Bowen, Bianca Carmelita Teves, and Clarice Xu**

## **Peace, Justice, and Human Rights**

Presented by the Program of Peace, Justice, and Human Rights

### *The PJHR Award for Engaged Scholarship*

Awarded to the graduating senior whose justice-oriented work in the concentration has been academically rigorous while also attuned to the importance of communicating ideas to people with different views and forms of training. Recipients of this award have mastered both disciplinary and interdisciplinary forms of excellence.

**Madeline Elizabeth Webster**

### *The PJHR Award for Ethical Action*

Awarded to the graduating seniors who have lived the values of peace, justice, and human rights both in the classroom and in the world beyond campus in an exemplary fashion. Recipients of this award have put their principles into action and made a positive impact in the larger world by engaging directly with communities impacted by injustice or inequality.

**Rachel Rock Schiffer and Janani Suresh**

### *The Elizabeth P. Smith Prize*

Established in 1915 by bequest from Elizabeth P. Smith, this prize honors the best essay on peace.

**Trinity Kleckner**

### *The Elliston P. Morris 1848 Prize*

Founded in 1906 by a gift of \$1,000 from Elliston P. Morris 1848, this prize honors the best essays on the subject of arbitration and peace.

**Inteemum Ahsan 2024 and Michelle Tran**

## **Philosophy**

Presented by the Department of Philosophy

### *The Charles Schwartz 1979 Memorial Prize in Philosophy*

Awarded in recognition of Chuck Schwartz 1979, this prize is given to the student whose senior essay best exemplifies the care, precision, and creativity demonstrated by the senior project of Chuck Schwartz.

**Hikaru Jitsukawa**

### *The Departmental Prize in Philosophy*

Recognizes the student who has made the most significant contributions to the vitality of the philosophical community, both within the classroom and beyond, while majoring in philosophy.

**Lara Elizabeth Deuber**

## **Physics and Astronomy**

Presented by the Departments of Physics and Astronomy

### *The Faculty-Student Collaborative Research Prize*

Funded by the Boughn-Gollub-Partridge Fund for Faculty-Student Research in Astronomy and Physics, this prize awards funds in support of research conference attendance to present research based on the senior thesis, or for research with Physics and Astronomy Department faculty.

**Jack Henry Crump and Emmy Wisz**

### *The Louis B. Green Prizes in Physics and Astronomy*

Awarded in honor of Louis B. Green (1911–99), a professor of astronomy and College administrator who inspired generations of students, these prizes are given to the graduating students who have gone above and beyond in their contributions to research and/or department culture and events. Established by Charles Ufford, a Haverford College parent.

**August Muller, Ashley Scheffler, Shi Jie Samuel Tan, and Eva M. White**

## **Political Science**

Presented by the Department of Political Science

### *The Emerson L. Darnell 1940 Prize*

Presented in honor of Emerson Darnell, a Quaker alumnus who dedicated his life's work to advocating peaceful social change and defending the civil rights of the individual. The prize is awarded annually to the student who presents the best paper demonstrating an appreciation of the Bill of Rights as the foundation of American law and the very fabric of American society.

**Madeline Rosen**

*The Harold P. Kurzman 1958 Prize*

Awarded to the senior who has performed the best and most creatively in political science coursework.

**Ryan William Murphy**

*The Harvey Glickman Prize*

Presented in honor of Harvey Glickman, a professor of political science at Haverford for 43 years and an esteemed political theorist. Awarded to the graduating senior in political science whose senior thesis displays the greatest innovation in pushing the theoretical boundaries of the discipline and its subfields. Established by the Political Science Department in 2019.

**Natasha Bansal**

*The Herman M. Somers Prize in Political Science*

Given in recognition of the research and teaching of Red Somers. Awarded to the graduating senior who presents the best senior project that reflects the interest in policy, respect for evidence, and the humane concern for improving society that characterized Somers' work.

**Ryan William Murphy**

*The Stephen H. Miller 1962 Memorial Award*

Presented in honor of Stephen H. Miller 1962, who lost his life serving his country and his fellow man in South Vietnam while taking part in village development as a member of the United States Information Agency. This award is presented to the graduating senior in political science who best exemplifies the ideal of political involvement and social service expressed in Miller's life and career.

**Natalia Marie Barber**

**Psychology**

Presented by the Department of Psychology

*The David Olton 1964 Research Award*

Created in memory of David Olton 1964, chair of the psychology department at Johns Hopkins University, who was an energetic and joyous contributor to the field of psychology. The award honors the senior who has done exceptional work and shows great promise in psychology.

**Cathy Zhu**

**Registrar**

Presented by the Registrar's Office

*The Scholarship Improvement Prize*

Awarded to the senior who has shown the most steady and marked improvement in scholarship during their time at Haverford.

**Patrick Coleman**

**Religion**

Presented by the Department of Religion

*The Religion Prize*

Awarded to the senior religion majors who presented the best theses.

**Sarah Katharine Brodnax and Sophia Madeleine Kaplan**

**Spanish**

Presented by the Department of Spanish

*The Manuel J. and Elisa Pi Asensio Prize*

Awarded for the best essays submitted by seniors majoring in Spanish or with a concentration in Latin American, Iberian, and Latinx Studies.

**Anna Madelon Garrison-Bedell and Marcos Antonio Padron-Curet**

## **Students' Council**

Presented by Students' Council

### *The Edmund J. Lee 1943 Memorial Award*

Recognizes Edmund Jennings Lee, the sole member of the Class of 1943 to be killed during World War II. This award is given to the student organization that has contributed the most toward the furtherance of academic pursuits, extracurricular activities, spiritual growth, or college spirit in individuals or in the College as a whole during the year.

## **Chemistry Student Group**

### *The John G. Wallace 1957 Class Night Award*

Presented to the student who has made the greatest contribution to on-campus performing arts.

## **Kayla Elaine Baquiran**

### *The Jonathan Mohrig 1986 Memorial Prize*

Honors a Haverford sophomore who died in 1984. This prize is awarded to the student at Haverford who embodies Jonathan's enthusiasm, warmth, humor, and quiet generosity to those around him, and who, like Jonathan, makes a special contribution to the quality of life at Haverford.

## **Athena Intanate**

### *The Martin Foss Award*

Given to the member of the Haverford College community whose life speaks directly to the lives of others by the powerful harmony of intellect, compassion, and courage.

## **Anna Madelon Garrison-Bedell**

### *The Service Leadership Award*

Presented to the graduating senior who will make outstanding contributions to social and/or environmental change through projects or programs of their initiation. The award is designed both to nurture graduating seniors as they begin to dedicate their lives to service action, as well as to develop a network of alumni doing model work in the field.

## **Seamus Matthew Flannery**

### *The Stephen G. Cary 1937 Award*

Given in honor of Stephen G. Cary 1937 and his contributions to the Haverford community, this award is presented to the senior who best exemplifies "honesty, integrity, a healthy combination of scholarly and extracurricular activities, and, most of all, a deep concern not only for those who are a part of the Haverford community, but also for those who are a part of our neighboring communities." An award of \$1,000 is given in the winner's name to the College for the purpose of financial aid.

## **Naren Sebastian Roy**

### *The Students' Council Student Life Award*

Presented to the senior who, through hard work, persistence, and concern for their peers, has made the greatest contribution to student life on campus.

## **Rasaaq Shittu**

## **Faculty and Staff Awards**

Presented by Students' Council

### *The Students' Association Award*

Presented to a Haverford faculty member who gives outstanding service to the Haverford community and who upholds the qualities intrinsic to a Haverford education.

**Kelly Matz**, *General Chemistry Laboratory Instructor and Coordinator*

# CHESICK SCHOLARS PROGRAM AND HORIZONS LEADERSHIP INSTITUTE

## Chesick Scholars Program

The John P. Chesick Scholars Program includes students from backgrounds underrepresented in academia who are especially interested in study and research in their areas of scholarly interest, as well as in working with faculty mentors and like-minded peers to build a supportive academic community.

The seventh cohort of Chesick Scholars comprises the following graduating seniors:

Ash DiCristofalo

Ebony E. Graham

Bilikisu O. Hanidu

Hannah Marie Kolzer

Elizabeth Mari

Finley Medina

Daniela Moreira

Carlos A. Muniz

Olufemi Obiwumi

Saúl Ontiveros

Rubí Samanta Rivas Guamán

Hipolito Salazar

Rasaaq Shittu

Tien Hoa Vu

Cathy Zhu

## Horizons Leadership Institute

The Horizons Leadership Institute includes students from groups underrepresented in academia who are especially interested in becoming agents of social and structural change on campus. The fifth cohort of Horizons participants comprises the following graduating seniors:

Tazkia Afra

Andrew Beltran

Marisleysis De La Cruz

Emmy Delormes

Faizah Khan

Jalen Martin

Jahsaiah Chozen Noel Moses

Maria Reyes Torres

Kayla Michelle Robinson

Trea Venus St.Hillaire

Kristina Tran

Elijah M. Vega

Khalil Ayele Walker

Sharon Gwendolyn Williams

*As of 2021, the Chesick Scholars and Horizons programs have combined to include all first-generation and/or low-income students on Haverford's campus. Graduating seniors who have chosen to honor this identity are wearing Chesick Scholar stoles over their commencement robes.*

# PHI BETA KAPPA SOCIETY

Founded in 1776, Phi Beta Kappa is the oldest undergraduate academic honor society in the United States. The Haverford College Chapter of the Phi Beta Kappa Society of America was chartered in 1898 as Zeta of Pennsylvania. The Haverford chapter is one of 286 nationwide, housed at colleges and universities with academic programs in liberal arts and sciences acknowledged as sufficiently rigorous and intellectually challenging by standards maintained by the national Phi Beta Kappa society.

Individual selection reflects excellence in the liberal arts and sciences and distinction in a broad array of undergraduate courses. At Haverford College, undergraduate members of good character are selected primarily on the basis of academic performance, as expressed in their course grades. The selection committee of alumni and faculty members of Phi Beta Kappa also considers, to the extent possible, the degree of originality, creativity, and imagination of thought; the range of depth of intellectual interests; and the precision and elegance of a student's work. Normally no less than 10 percent and no more than 15 percent of a graduating class are selected.

The Phi Beta Kappa Society supports programs that significantly advance scholarship and academic excellence by awards, lectures, and outreach activities to schools. Membership now numbers more than 500,000 individuals.

The following members of the Classes of 2023 and 2024 have been elected to the Phi Beta Kappa Society.

## **Members of the Class of 2023 elected during the junior year:**

Mia Alexis Kussman	Nathan Wesley Rose
Christina Maye McBride	Ashley Scheffler
Carolena Alexander Munro	

## **Members of the Class of 2023 elected during the senior year:**

Lauren Vee Arakelian	Lina Marsella	Maisie Whitman Smith
Sarah Katharine Brodnax	Isabel Martin	Sarina Marie Smith
Jack Henry Crump	Alexander Crofton May	Shi Jie Samuel Tan
Ella Rose Culton	Nicholas Bayan Mostaghim	Mackenzie Tygh
David Dinh	August Muller	Lucas Doug Jone Voit
Oscar D. Garrett	Carlos A. Muniz	Wen Yun Wang
Cameron Wheeler Gavalier	Ryan William Murphy	Yimeng Wang
Sarah Gold	Lucas Leatherman Nelson	Madeline Elizabeth Webster
Adena Devra Kibel	Natalie Rose Olivieri	Eva M. White
Lauren Elise Kinne	Kendall Ozorowski	Cathy Zhu
Benjamin Zeev Klahr	Logan Alexander Post	
Anna Malkov	Jared Zachary Sloan	

## **Members of the Class of 2024 elected this year:**

Maya Isabelle Antonio	XingZhi (Gigi) Chen
Isabel Rose Ashford Arya	Katy Anne Cheng













## BACHELOR OF ARTS AND BACHELOR OF SCIENCE

The senior capstone project is an opportunity for Haverford students to apply the skills, methods, and concepts specific to their major field in the production of new knowledge, the original synthesis of existing knowledge, and/or creative artistic expression. The titles of these theses, performances, and/or fine arts portfolios appear below students' names. Certain majors also include comprehensive exams, and for some majors offered through partner institutions, a senior capstone project may not be required.

### **Sarah Miriam Abraham**

Anthropology and International Studies at  
Bryn Mawr College: *Fabricating Race, Culture, and  
Identity in South East Asian "International" Schools*

### **Selina Adelman**

Growth and Structure of Cities at Bryn Mawr  
College: *Finding New Community: Evolving Japanese-  
American Identities in the Hoshū-kō*  
with a Minor in Anthropology

### **Justin William Adler**

Neuroscience: *Examining the Effects of Sleep  
Disturbances on Alzheimer's Disease Pathology*  
with a Minor in Health Studies

### **Tazkia Afra**

Computer Science: *Exploring the Effectiveness of  
Conversational Web Browsing*  
with a Minor in Psychology

### **Kartik Aggarwal**

Economics: *The Cost of Skilled Immigration in IT,  
Finance, and Legal Occupations*

### **Kimberly Ysapy Agüero Martins**

Economics: *The Effect of Attention Deficit  
Hyperactivity Disorder on Labor Market Outcomes*  
with a Minor in French and Francophone Studies

### **Olivia Catherine Ahart**

Psychology: *The Impact of Stress on Inhibition:  
A Stepwise Methodology*  
with a Minor in Neuroscience

### **Trisha Ajila**

Psychology: *Protective Factors for the Impact of  
Adverse Childhood Experiences on the Health of  
First-Year Undergraduate Students*  
with a Minor in Neuroscience

### **Eleanor Laura Alix**

Neuroscience: *Investigating the Potential of the  
Gut Microbiome as a Novel Therapeutic Target for  
Attention Deficit Hyperactivity Disorder*  
with a Minor in Economics

### **Corinne Michelle Beatty Allen**

Biology: *Investigating Nuclear Import of Exogenously  
Introduced Oligonucleotides in Chlamydomonas  
reinhardtii*

### **Yousef M. Almbaid**

Economics: *Citizenship by Investment Programs and  
Tax Evasion: A Brief History*

### **Lauren Vee Arakelian**

Economics: *The Evolution of the Gender Earnings  
Gap Among Law School Graduates*

### **Andrew J. Arth**

Economics: *The Cobalt Supply Chain and Clean  
Energy Storage in the U.S.: A Review*  
with a Minor in Political Science at Bryn Mawr  
College

### **Anna Karina Avanesyan**

History: *Imagining the Ottomans: Appropriations of  
the Ottoman Empire in 18th-Century France*  
with a Minor in Spanish

### **Natasha Bansal**

Political Science: *Collaboration Is Key: The Impact  
of Immigrant-Led Grassroots Activism on the Passage  
of Progressive Redistributive Policies in San José,  
California*  
Spanish: *Lengua y poder: El uso del español en los  
discursos políticos estadounidenses*

### **Kayla Elaine Baquiran**

Growth and Structure of Cities at Bryn Mawr  
College: *The Nightmares of Urban Governance:  
Understanding the Rise of the Nachtbургemeester  
in the United States*  
with Minors in Economics and Mathematics

**Natalia Marie Barber**

Political Science: *Lives Rebuilt: The Challenges of Reintegration for Returning Mexican Migrants*  
 Spanish: *Las distopías críticas y el desarrollo de comunidades de resistencia en las novelas Ink y Lunar Braceros*: 2125–2148  
 with a Concentration in Latin American, Iberian, and Latinx Studies

**Dahlia Claire Barton**

Anthropology: *COVID-19's Effect on Haverford College: Who Were We, Who Are We, and Where Do We Want to Go?*  
 with a Minor in Philosophy

**Zachary Yun Becker**

Mathematics: *Optimizing Pitching-Substitution Strategy Using a Markov Chain Model*  
 with a Minor in Economics

**Andrew Beltran**

Spanish: “¡El caballo! La pistola! Las Copas!”: *Un discurso de masculinidad mexicana durante los '50s*

**Dalia Rue Bercow**

Biology: *Investigating the Chemical Communication Between Tropical Eusocial Wasps and Army Ants*  
 with a Minor in Environmental Studies

**John Oliver Bergeron**

Neuroscience: *How Does MDMA Affect the Brain to Reduce the Severity of PTSD?*

**Ana Sofia Bernal McCracken**

Neuroscience: *How Does Early-Life Loss of Hearing Affect the Development of Attention Disorder Symptoms?*  
 with a Minor in Economics

**Amolina Bhat**

Philosophy: *Uneasiness in the Museum: The Affective Subjectivity and Openness of Art Interpretation*  
 Sociology: *The Intersections of Civil Religion, Secularism, Hinduism, Islam, and Christianity: The Case of Modern-Day India*

**Margaret Adger Bowen**

Biology: *Compatibility and Engineering of Type II Polyketide Synthase Enzymes*  
 Music: A violin performance of works by Brahms, Debussy, Coleridge-Taylor, Bach, and Saint-Saëns

**Aaron S. Bratt**

Mathematics: *On Minimizing the Nonorientable 4-Genus of Whitehead Doubles*  
 with a Minor in History at Bryn Mawr College

**Maxwell Isaac Diamond Brelig**

History: *Vasily Golovnin's Captivity Narrative in the Kurile Islands 1811–13 and Russo-Japanese Relations*

**Juliana Mendes Brinn**

History: *A Recipe for Cannibal Pâté: Indigenous Peoples and Representation in 20th-Century Brazilian Modernist Art*  
 with a Concentration in Latin American, Iberian, and Latinx Studies

**Sarah Katharine Brodnax**

Anthropology and Religion: “*We Are the Church*”: *Forging Catholic LGBTQ Ministries Amidst Institutional Silencing*

**Margaret Rose Brown**

Anthropology at Bryn Mawr College:  
*An Evolutionary Perspective on von Willebrand Disease: Modeling the Effects of Natural Selection on the Frequency of von Willebrand Disease-Causing Alleles*  
 with a Minor in Health Studies

**Sarah Adelle Brown**

Psychology: *Developing a 3D Object Categorization Paradigm for Adult Long-Evans Rats*  
 with Minors in Chinese Language and East Asian Languages and Cultures

**Peter Buckley**

Philosophy: *Wilfrid Sellars, Language Acquisition, and the Necessity of Joint Awareness*  
 with a Minor in Religion

**Simon Byrne**

Mathematics: *A Logistic Regression to Compare Regular-Season NHL Data to Postseason Results*

**Diego Capcha**

Biology: *Elucidating the Protein Targets of Antimicrobial Compounds Secreted by Streptococcus pneumoniae*

**Emrys Chalfoun**

Linguistics: “*Wild Eyed Socialist*”: *The Use of Rhetorical Tools in Republican Speeches*  
 with a Minor in Sociology

**Rhea Jay Chandran**

History: *Subject to Reform: Race, Caste, and the Gendered Governance of Female Sexuality in Late Colonial India (1887–1929)*

**William John Robertson Chartener**

Mathematics: *A Two-Part Approach to Airline Crew Scheduling*

**Hannah Mia Chayet**

Classical Culture and Society: *“War Shall Be the Business of Womenfolk!”: An Analysis of Women’s Rhetoric and Political Engagement in Lysistrata and Assemblywomen* with a Concentration in Gender and Sexuality Studies

**Junyi Chen**

Mathematics: *Topics in the One-Dimensional Discrete Dynamical System and Fractals* with a Minor in Economics

**Tsenguun Chinzorig**

Psychology: *Redesigning Haverford College’s Counseling and Psychological Services (CAPS) Website Through the Application of UX Design Principles* with a Minor in Computer Science at Bryn Mawr College

**Peter Christians**

Economics: *Intra-Industry Trade in Financial Services: An Empirical Study on the United States and Its Trade Partners*

**Ashley Chun**

Psychology: *Exploring Bottom-Up Ethnic-Racial Socialization in Asian American Immigrant Families* with a Minor in Philosophy

**Magnolia P. Clayton**

Independent Major in Education: *Accessibility and Equity: Pursuing Education as Liberating Practice* with a Concentration in Peace, Justice, and Human Rights

**David Andrew Christopher Cole**

Environmental Studies: *Carbon Sequestration Potential of No-Till Farming*

**Patrick Coleman**

Economics: *An Analysis of Whether There Exist Consistent Biases Made in Major League Baseball Organizations During the Draft* with a Minor in Spanish

**John Vincent Collins**

Mathematics: *A Statistical Analysis of European Cycling Grand Tours*

**Jude Correll**

Biology: *Characterization of Bombus impatiens Color Vision Using Computational Visual Modeling and Y-Maze Behavioral Assessments*  
Physics: *Insect Traps Through Insect Eyes: Modeling Insect Vision of Common Color Traps Using Color Signal Analysis*

**Leo Tone Costa**

Psychology: *The Impact of Multilevel Acute Stress on Behavioral Inhibitory Control: An ERP Study* with a Minor in Data Science at Bryn Mawr College and a Concentration in Film Studies at Swarthmore College

**Paul-Andre Coulibaly**

Political Science: *Politics in the FIFA World Cup*

**Zachary Tyler Crampton**

Computer Science: *The Application of Reinforcement Learning for National Football League Sports Gambling*

**Quinton Ayres Crawford**

Philosophy: *Is Psychological Egoism Obviously False? An Evaluation of Arguments for and Against Psychological Egoism* with a Minor in Economics

**Edna May Creelman**

Sociology: *Fiduciary Care and the Necessity of Physician Autonomy: The Dilemmas of End-of-Life Care in Contemporary Health Care Institutions* with Minor in Philosophy

**Jack Henry Crump**

Physics: *Cosmological Variation of the Fine-Structure Constant* with Minors in Astronomy, German and German Studies, and Mathematics, and a Concentration in Scientific Computing

**Ella Rose Culton**

Environmental Studies: *“It’s the Pits!”: Imaging of Lepidophloios and Lepidodendron, Arborescent Lycopsid Tracheids* with a Minor in Biology at Bryn Mawr College

**Sydney Nicole Cummings**

Psychology with a Minor in Anthropology



**Julia Rose Curran**

Computer Science: *Studying Graph Centralities in Predicting a Player's Importance to a Team*  
with a Minor in Economics

**Claire Cywes**

Biology: *Investigating the Cytotoxic Effect of the Novel Marine Bacterial-Derived Fatty Acid Antibiotic (Z)-13-methyltetra-4-deconoic Acid on Mammalian Cells*  
with a Minor in Health Studies

**Charlotte Dagonnes**

Cognitive Science at Swarthmore College

**A. Eric Dahlberg**

Computer Science: *Twitter Users' Political Ideology Change Over Time*

**Xufeng Caesar Dai**

Computer Science at Bryn Mawr College: *Decoding Inner Thoughts: Extracting Task-Specific Neural Features From Inner-Thoughts Electroencephalogram (EEG) Signal With Minimum Spanning Tree (MST)*  
with a Minor in Mathematics

**Thomas Neal Dandino**

Physics: *Signals of Failure in the Contact Force Network*

**Ian Davis**

Psychology: *Duck, Duck, Dominance: Group-Status Identity as a Predictor of Social Dominance Orientation in Children*  
with a Minor in Statistics

**Marisleyxis De La Cruz**

Computer Science: *Making Computer Science Education Accessible to Blind and Visually Impaired Students*  
with a Minor in Gender and Sexuality Studies

**Logan Pierre de Raspide Ross**

Astrophysics: *Delensing the Cosmic Microwave Background*

**Luca Mello**

International Studies at Bryn Mawr College  
with a Minor in Economics

**Hilda Delgado**

History of Art at Bryn Mawr College: *Porcelain, Pottery, and Protest: Roberto Lugo's Trans-Temporal Visions of Art and Activism for the 21st Century*

**Emmy Delormes**

Environmental Studies: *A "How-To" Guide on Starting a Community Garden for Nonprofit Organizations*  
with a Minor in Chemistry

**Celine Demir**

Economics: *Health Aid and Health Outcomes in Sub-Saharan Africa*  
with a Minor in Health Studies

**Yongtao Deng**

Mathematics: *Lower Bounds on 4D Crosscap Numbers for Rational Knots*  
Physics: *Topological Edge States in Topological Materials*

**Yuheng Deng**

East Asian Languages and Cultures: *The Visual Politics: Word and Image in Republican-Era Propaganda Broadsheets*  
with a Minor in Japanese Language

**Lara Elizabeth Deuber**

Mathematics: *Using Data From Metroplex Areas to Understand Voting Changes in the 2020 Election*  
Philosophy: *Truly Seeing Mathematics: An Exploration of Mathematical Aspects Through Ability, Skill, and Expertise*

**Xavier DeVore**

Computer Science: *Open Data and Accessibility*

**Ash DiCristofalo**

Biology: *The Endosymbiont Bacteria Wolbachia Localizes Near the Astral Microtubules Within Multiple Species of Drosophila, and the Staining Procedure Has Also Been Improved by Development of a Low-Cost Fly Embryo Strainer*  
with a Minor in Classical Culture and Society

**David Dinh**

Computer Science: *Simulating Smoke on the GPU*

**Tung Nguyen Do**

Computer Science: *Approaches to Unweighted and Undirected Graph Cut Sparsification*

**Allison Elizabeth Dockman**

Biology: *Acer saccharum Extracts Ameliorate the Huntington's Disease Phenotype in a Caenorhabditis elegans Model*  
with a Minor in Health Studies

**Caroline Adelina Donado**

Economics at Bryn Mawr College: *The Effects of the Pandemic on Underperforming Students in Low-Income Schools: Evidence From Pennsylvania* with a Minor in Visual Studies

**Rebecca Paige Donahue**

Neuroscience: *The Impact of Stress on Response Inhibition: A Stepwise Manipulation of Exposure* with a Minor in Psychology

**John Dvorak**

Biology: *Adapting a Drug-Inducible System to Investigate Temporal Requirements of the Adaptor Protein 2 Complex in Zebrafish* with a Minor in Neuroscience

**Aldan Dye**

Chemistry: *Discovery of New Ruddlesden-Popper Materials Using High-Throughput Techniques*

**Jason Brian Edmonds**

Economics: *The Effects of Tournament Incentives, Ability, and Experience on Clutch Performance: Evidence From the ATP Tour* with a Minor in Psychology

**Ethan Gabriel Zev Ezray**

Sociology at Bryn Mawr College: *"I Can See Your Halo Effect": The Relationship Between Norms Around Attractiveness and Social Status* with a Minor in Child and Family Studies at Bryn Mawr College

**Li Fan**

Computer Science: *Deep Learning for Statistical Parameter Estimation*  
Mathematics: *Principal Component Analysis* with a Minor in Statistics

**Chih Han Fang**

Psychology: *A Mixed-Methods Longitudinal Investigation of College Turning-Point Narratives* with a Minor in Japanese Language

**Katharine Graham Ference**

Mathematics: *Fighting Cancer: Can Differential Equations Provide the Punch?*

**Seamus Matthew Flannery**

Physics: *Horizon Crossing Navigation Around Jupiter* with Minors in Fine Arts and Computer Science at Bryn Mawr College

**Michael Franco**

Computer Science: *The Alternate Text Dilemma: Analyzing the Effectiveness of Automatic Image-Captioning Systems for Blind or Visually Impaired Users*

**Sophie Rose Frem**

Physics: *Systematically Studying the Effects of Foot-Substrate Interactions on Robot Locomotion* with Minors in Astronomy and Fine Arts

**Julian Nathan Frost**

History: *"Entirely New Solutions"? Modernist Visions of the City During the Reconstruction of Nantes (1943–55)*

Growth and Structure of Cities at Bryn Mawr College: *"L'urbanisme à la nantaise": Lessons From the Forefront of French Participatory Democracy* with a Minor in French and Francophone Studies

**Shriya Anurati Fruitwala**

Environmental Studies: *Gardening for Dummies: A Community Guidebook for Building a Box Garden*  
Mathematics: *On Thin Ice: Modeling Ice Sheets With the Shallow Ice Approximation*

**Joshua Allen Fuller**

Biology: *Editing the Chloroplast Genome of Chlamydomonas reinhardtii via Oligonucleotide-Directed Mutagenesis* with a Minor in Chemistry and a Concentration in Biophysics

**Yujia Gan**

Mathematics: *Choice Axioms and Baire Space*

**Oscar D. Garrett**

Biology: *Parsing the Biomolecular Basis on Which a Bacterial Signaling Molecule Induces Cellular Arrest and Protection From Virus-Induced Mortality in *Emiliana huxleyi** with a Minor in Environmental Studies and a Concentration in Biochemistry

**Anna Madelon Garrison-Bedell**

Spanish: *Desde Filadelfia hasta California sureño: los huertos comunitarios migrantes como sitios para la preservación y la reproducción cultural mexicana* with a Concentration in Latin American, Iberian, and Latinx Studies

**Cameron Wheeler Gavalier**

Mathematics with a Minor in Computer Science at Bryn Mawr College

**Joanna Morgan Gengo**

Neuroscience: *Stress and Inhibitory Control: Investigating the Potential for a Nonlinear Relationship*

**Joseph Anthony Gentile**

Computer Science: *Reaching the Shannon Limit: A Review of Polar Codes*  
with a Minor in Transnational Italian Studies at Bryn Mawr College

**Joshua Macgregor Gerstein**

Sociology: *Towards a Theory of Fascism: The Rise of the Nazis*

**Caroline Gihlström**

Computer Science: *Representing Negation and Compositionality in Neural Models for NLP*  
Linguistics: *Towards an Explanation of "Optional" Resumptive Pronouns in Colonial Valley Zapotec and Macuiltianguis Zapotec Relative Clauses*

**Gabriela Jie yin Godin**

Neuroscience: *Activation of Locus Coeruleus Calcitonin Receptors Suppresses Food Intake Without Inducing Illness-Like Behaviors*

**Rishabh Golchha**

Economics:  
Mathematics at Bryn Mawr College: *Does Congress Influence Federal Reserve Policy? Evidence From Shared Allegiance and Election Periods*

**Sarah Gold**

Linguistics: *The Morphology, Syntax, and Binding Properties of Zapotec Pronouns*  
Mathematics: *Crystal Structures on Key Polynomials*

**Deniz Gonen**

Growth and Structure of Cities at Bryn Mawr College: *Pastoral Fantasies, Urban Realities: A Study of Campus Expansions at New York City Universities*  
with a Minor in Economics

**Maya Gong**

Mathematics: *The Budyko Energy Balance Model With Dynamic Heat Transport*  
with a Minor in Environmental Studies and a Concentration in Scientific Computing

**Hedy Tetschner Goodman**

Astronomy and Physics: *Astronomical Observatories: Case Studies in Architecture and Design*  
with a Minor in German and German Studies

**Rowan John McNelis Goudy**

Chemistry: *Vibrational Spectroscopic Maps for Nonpolarizable and Polarizable Molecular Dynamics Simulations of CO<sub>2</sub> Solvated in [BMM][PF<sub>6</sub>]*  
with a Concentration in Scientific Computing

**Molly McIntyre Gouran**

History: *Ybor City's Columbia Restaurant—From Cigar Capital to Urban Renewal: The Ethnic Entrepreneur*  
with a Minor in Psychology

**Ebony E. Graham**

Environmental Studies: *Returning the People to the Land: An Exploration of Black Americans' Relation to the Natural World in the Past and Present*  
with Minors in Educational Studies and Africana Studies at Bryn Mawr College

**Rafael Giovanni Grossman-Naples**

Political Science: *The Legality of American Vigilantism: An Argument Against the Claim of Extralegality*  
with a Concentration in Peace, Justice, and Human Rights

**Amanda Halliday**

Neuroscience: *The Effects of Peripartum Estradiol Fluctuations on Mesolimbic Dopamine Dynamics*  
with a Minor in Psychology

**Lauren T. Handler**

Psychology: *Explanations for Why W.E.I.R.D. Brains Are Hard to Study: Exploring the Barriers in Collecting and Reporting Racial Demographics in the Field of Cognitive Neuroscience*  
with a Minor in Health Studies

**Bilikisu O. Hanidu**

Neuroscience: *How Early-Life Nociceptive Pain in Preterm Infants Affects Long-Term Cognitive Processing*  
with a Minor in Psychology

**David Witmeyer Harris**

Political Science: *Analyzing the Public vs. Private Factor: The Creation of COVID-19 Policy in Higher Education Institutions in the United States During the 2020–21 Academic Year*  
with a Minor in History at Bryn Mawr College

**Megan ViHan Heflinger**

Biology: *Characterization of mRNA Regulatory Regions Sufficient for YBX3 Post-Transcriptional Control*  
with Minors in Fine Arts and Child and Family Studies at Bryn Mawr College

**Matthew Brent Heim**

Economics: *Major League Soccer's Search for Talent: Do Elite Leagues Always Produce Elite Players?*

**Jared Charles Oliver Heller**

History: *A Hunger to Survive: The Holocaust and the Jewish Food Journey*

with a Minor in East Asian Languages and Cultures

**Augustus William Boone Helson**

Physics: *Granular Contact Force Network Evolution by Randomized Microimpaction*

Mathematics at Bryn Mawr College: *Mathematical Principles Behind the Physics of Photoelasticity*

**Lia Danielle Herzig**

Neuroscience: *NMDA Receptor Antagonism Effects on Recognition Memory in Periadolescent Long-Evans Rats*

with a Minor in Health Studies

**Savidya Dilni Hettiarachchi**

Biology: *Tau Pathology Independently Induces Ferroptosis in a Genetic Model of Alzheimer's Disease*  
with a Minor in Linguistics and a Concentration in Biochemistry

**Carly Hill**

Environmental Studies: *Transforming the Ardmore Victory Gardens Guidebook*

with a Minor in Geology at Bryn Mawr College

**Bethany Ka-Yan Ho**

History: *"This Fatal Accident": Suicide and Punishment in 18th-Century England*

with a Minor in Computer Science at Bryn Mawr College

**Drew Hoffman**

Economics: *Greening the Grid: Assessing Policy Incentives Across U.S. States*

with a Minor in Environmental Studies

**Matthew Hogenauer**

Biology: *Screening Epigallocatechin-3-Gallate and Curcumin for Synergistic Protective Effects in a Caenorhabditis elegans Model of Huntington's Disease*

with a Minor in Health Studies

**Jaclyn Holtby**

Biology: *Characterizing Essential Regions for YBX3's Post-Transcriptional Regulation*

with Minors in French and Francophone Studies and Health Studies

**Sophia Honigfeld**

English: *"What All Spirits We Cd Move": Black Feminist Choreopoetics of Haunting and Healing in For Colored Girls Who Have Considered Suicide/ When the Rainbow Is Enuf*

with a Minor in Educational Studies

**Emily Mae Hsiang**

Music: An original composition entitled *Franny: A Musical*

Anthropology at Bryn Mawr College: *Thinking One Step Ahead: Women's Awareness of Gender Difference in Workplace Communication*

**Lingxi (Lindsey) Hua**

Economics: *Are People More or Less Risk-Averse in Groups?*

with Minors in Psychology and Statistics

**Lilian Huang**

Chemistry: *Life, Death, and the Chemistry of Tattoos: A Review on Tattoo Pigment Degradation and Toxicology*

with a Concentration in Biochemistry

**Katherine Mary Lucinda Hueston**

Political Science: *Are Rural Massachusetts Communities "Bowling Alone"? An Investigation of Civic Engagement, Political Participation, and Partisanship in the Massachusetts Hilltowns*

with a Concentration in Peace, Justice, and Human Rights

**Madison Hujber**

Neuroscience: *Bipolar Disorder, Mindfulness, and Psilocybin*

with a Minor in Health Studies

**Aidan Hutchinson**

Psychology: *The Interaction Between Mind Wandering and Dysphoria*

with a Minor in Religion

**Athena Intanate**

English: *Beyond the Margin: The Reconstruction of Cultural Memory Through Image-Poem in Silent Anatomies*

Spanish: *Intimidaciones coloniales: El rol del realismo mágico en "La increíble y triste historia de la cándida Eréndira y su abuela desalmada" de Gabriel García Márquez*

International Studies at Bryn Mawr College: *"Have You Eaten Yet?" The Gastropoetics of South East Asian American and East Asian American Communities*

**Calais Irwin**

Political Science: *How Far Can "Sorry" Go? Evaluating the Power of Official Apologies in Canada with a Concentration in Peace, Justice, and Human Rights*

**Jessica Lauren Israel**

History: *A Battle for the Neighborhood: The 1917 Philadelphia Sugar Strike and Food Boycott*

**Hikaru Jitsukawa**

Mathematics: *A Polygonal Characterization of the Bruhat Interval in Affine  $S_3$*

Philosophy: *The Stages on Which We Play: Critical Phenomenology and Theatrical Interpellation*

**Sophia Madeleine Kaplan**

Political Science: *Abortion Advocacy in Crisis: Pro-Choice Interest-Group Formation and Mobilization in Response to Dobbs v. Jackson Women's Health Organization*

Religion: *Sacred Work and Religious Duty: How the Clergy Consultation Service on Abortion Used Normative Religion and Secularism Arguments to Elevate the Pre-Roe Abortion Advocacy Movement as Legitimate Religious Actors*

**Katalina Kastrong**

Anthropology and Linguistics: *Quaker Interpretation: The Role of Communication and Identity in the Production of Quaker Values*

**Eleanor Claire Keating**

Spanish: *Género, naturaleza y cine: La búsqueda del límite de la violencia del conflicto armado colombiano en La Sirga y Alias María with a Minor in Environmental Studies*

**Alexander Henry Keegan Jiganti**

History: *The First Anglo-Mughal War—Lessons Learned in Defeat: Sea Power, the Embrace of Fortification, and the Development of Deterrence with a Minor in Economics*

**Omar Mohamed Kenawy**

Anthropology: *Between Worlds: The American Muslim Experience in Eastern Pennsylvania*  
Environmental Studies

**Nicholas Gary Kerkorian**

Economics: *Friendly Fire: The Impact of Team Pressure on Biathlon Shooting Performance with a Concentration in Mathematical Economics*

**Filip Karol Kesicki**

Economics: *The Impact of Special Economic Zones and the Polish Investment Zone Program on the Polish Labor Market with a Minor in Spanish*

**Faizah Khan**

Computer Science: *Beyond the Visible: Computer Science Students Living With Mental Health Conditions*

**Adena Devra Kibel**

Philosophy: *Present Hope: A Possible Means for Living With and Understanding Camus' Absurdism*  
Spanish: *Las palabras de pertenencia: Un examen del uso del lenguaje en Las genealogías por Margo Glantz*

**Nikki Kingsland**

Economics: *How Extending Foster Care in Florida Affects Educational and Economic Outcomes of Foster Youth During the Transition to Adulthood*  
International Studies at Bryn Mawr College

**Lauren Elise Kinne**

Biology: *A Question to Keep You Up at Night: How Does Circadian Rhythm Disruption Affect C9orf72 Dipeptide Repeat Accumulation and Aggregation in Drosophila melanogaster?*

**Anna Mershon Kirn**

Biology: *Investigating the Genetic Basis for Oligonucleotide Directed Mutagenesis Efficiency in Chlamydomonas reinhardtii with a Minor in Psychology*

**Benjamin Zeev Klahr**

Mathematics: *Survival Analysis: Methods and Applications of Time-to-Event Data Analysis*

**Hannah Marie Kolzer**

Classical Languages: *Reading the Mountains of Rome: Understanding the Transgressive Landscapes of Statius' Thebaid with a Minor in Linguistics*

**Ryan G. Kredell**

Economics: *The CARD Act's Impact on Consumer Debt with a Minor in Psychology*

**Dylan Kupetsky**

Physics: *Comparing Two Methods for Reconstructing Free Energy Environments with Minors in Environmental Studies and Mathematics*

**Mia Alexis Kussman**

Psychology: *"Why Am I Still With You?": The Role of Implicit Theories of Relationships in Predicting Commitment to an Unfulfilling Relationship* with Minors in Linguistics and Data Science at Bryn Mawr College

**Zachary Holbrook Landry**

Mathematics: *Optimizing MLB Free Agency With the Genetic Algorithm*

**Nicholas Frank Lasinsky**

English: *"We Are Not Dead, But Sleeping Here": Exhuming Critique, Community, and Care in 19th-Century Obituary Poems*  
History: *Copper's Care: Public Welfare, Paternalism, and Worker Expression in a Michigan Company Town*

**Abraham Levin**

Mathematics: *Modeling Perfect Play in "Cookie Clicker" Using Shortest-Path Algorithms* with a Minor in Economics

**Sasha Levina**

Astronomy and Physics: *Applying Wind Roche-Lobe Overflow in Binary Evolution Using MESA and POSYDON* with a Concentration in Scientific Computing

**Zara Elena Levy**

Psychology: *"I'll Be Watching You": The Mediating Role of Jealousy and Trust Between Attachment and Surveillance* with a Minor in Health Studies

**Rebecca X. Lin**

East Asian Languages and Cultures: *The Metamorphosis of the Mermaid: On the Transformation of Fairy Tales in Japan* with a Minor in Psychology

**Yikang Lin**

Computer Science: *Inductive Biases in Generative Adversarial Networks* with a Minor in Statistics

**Hunter Logan**

English: *Trans/Textual Convolutions of the Kaufmanesque: The (Im)Possibility of Cohesion in Charlie Kaufman's I'm Thinking of Ending Things*

**Joshua Michael Love**

Environmental Studies: *Exploring Philly Urban Farms: Methods of Community-Building and Healthy Living* with a Minor in Data Science at Bryn Mawr College

**Ceanne Lyon**

Mathematics: *Fair Division With Sperner's Lemma* with a Minor in Statistics

**Belle Handler-Maben**

Environmental Studies: *Mapping the Bi-Co: A Needs-Based Job Board* with a Minor in Visual Studies

**Anna Malkov**

Chemistry: *Synthesis and Characterization of Cobalt(II) Chloride Complexes of Guanidine-Based TTP and oBIM3tren* with a Minor in Psychology and a Concentration in Biochemistry

**Charles Burke Mamlin**

Environmental Studies: *Imaging Calamities: Methodologies of Investigating Carboniferous-Period Plant Hydraulics* with a Minor in Data Science at Bryn Mawr College

**Elizabeth Mari**

Chemistry: *Antimicrobial Resistance: A Public Health Review of Policy, Education, and Treatment*

**Abigail Tommy Marquis**

Chemistry: *Small Atomic Changes: Tuning the Reactivity of ABPP Probes* with a Concentration in Biochemistry

**Lina Marsella**

Linguistics and Transnational Italian Studies at Bryn Mawr College: *Social and Linguistic Marginalization, and the Question of "Standard": An Analysis and Translation of Giulio Cesare Cortese's La vaiasseide*

**Erin Reingold Martin**

Growth and Structure of Cities at Bryn Mawr College: *Practices of Social Regulation and Informal Formalization: A Case Study of America's Homeless Encampments* with a Minor in Mathematics

**Isabel Martin**

Psychology: *Compounding Costs: Exploring the Relationship Between Depression and Mind Wandering* with Minors in Classical Culture and Society and Educational Studies

**Jalen Martin**

English: *The Leak* with a Minor in Visual Studies and a Concentration in Creative Writing



**Natalie Catherine Masetti**

Psychology: *Talking About Race: Discussions of Whiteness in Parent-Child Dyads*

**Sarah Rose Mastrocola**

English: *"I Knew Such Lovely Pictures": The Aesthetic Function of Nadsat and the Politics of Counterculture in A Clockwork Orange*  
with a Minor in Visual Studies

**Daniel H. Mathis**

Political Science: *From Harmony to Hostility: Understanding the Drivers of the Volatile Relationship Between China and Taiwan*

**Alexander Crofton May**

Neuroscience: *The Acer rubrum-Derived Polyphenol Ginnalin A Attenuates Amyloid Beta Toxicity in a Caenorhabditis elegans Model of Alzheimer's Disease*  
with Minors in Health Studies and Psychology

**Keith Mburu**

Computer Science: *Joint Learning to Improve Generalization: Automatic Music Transcription and Music Source Separation*

**Justin Heath McAllister**

Neuroscience

**Cullen David McAnally**

Classical Culture and Society and Classical and Near Eastern Archaeology at Bryn Mawr College: *Exchange and Agency in Northern Roman Britain: The Native Sites of Fairy Knowe and Leckie Brochs*

**Christina Maye McBride**

Chemistry: *The Never-Ending Twists and Turns of a "Biosynthetic Scavenger Hunt": Unearthing Novel Biosynthetic Gene Clusters Using Bioinformatics and Strategically Evaluating ACP/PPTase Compatibility In Vitro by Traversing the Type II Polyketide Synthase Sequence Space*  
with a Concentration in Biochemistry

**Kathryn Fay McCaney**

English: *Narcissus Removed*  
with a Minor in History of Art at Bryn Mawr College and a Concentration in Creative Writing

**Nathan Kenneth Haberman McGinty**

Economics: *Leafing Crime Behind? Tree Density and Crime Rates in Seattle*  
Mathematics at Bryn Mawr College

**Blythe Conkling McWhirter**

Political Science: *"By Any Means Necessary": Forty Years of Social-Organizational and Moral Resource Mobilization Within Philadelphia's Squatters' Rights Campaigns*  
with a Minor in Spanish and a Concentration in Peace, Justice, and Human Rights

**Liam Pangle Mears**

Classical Culture and Society: *Medea in America: Afrocentric Receptions in the 21st Century*

**Finley Medina**

Environmental Studies: *A Community Garden Guidebook: Securing Food Pathways for Environmental Justice*  
with a Minor in Fine Arts

**Dhruv Mehrotra**

Physics: *The Measurement Problem in Quantum Mechanics*  
with a Minor in German and German Studies

**Anay Ojas Mehta**

Mathematics: *Modeling Energy Grids Over Variable Time Periods*  
with Concentrations in Mathematical Economics and Scientific Computing

**Isha Mehta**

East Asian Languages and Cultures: *The Relationship Between Humans and Animals: The Qin to the Tang Dynasty*

**Benjamin Zbar Meyers**

Mathematics: *A Multiobjective Optimization Model for the Reallocation of Investments in Private-Sector Home Building*  
with a Concentration in Mathematical Economics

**Yeda Kristen Min**

Biology: *Elucidating Post-Transcriptional Control of and by YBX3 in Skeletal Muscles*  
with a Concentration in Biochemistry

**Meredith Elaine Modlin**

Computer Science: *H/FOSS Engagement Through Undergraduate Computer Science Courses and the Impact on Sense of Belonging for Underrepresented Racial Minority Students*  
with a Minor in Fine Arts

**Max Mondress**

Economics: *Undergraduate Stafford Loan Take-Up and Labor Market Outcomes*  
Mathematics at Bryn Mawr College

**Samuel Charles Monks**

Psychology: *A Mixed-Methods Longitudinal Investigation of College Turning-Point Narratives*  
with Minors in Neuroscience and Philosophy

**Daniela Moreira**

Physics: *How Light Affects Matter: An Inquiry of the Unusual Photoconductivity of Silicon Oxide in Relatively Humid Conditions*  
with a Minor in Chemistry

**Jamie Moreland**

Growth and Structure of Cities at Bryn Mawr College: *Olympic Dreams: Francisco Franco's Cultural Legacy Through the Lens of Spanish Olympic Bids*  
Romance Languages at Bryn Mawr College

**Courtlyn H. Morris**

Mathematics: *Calculating the Denominators of Various Eisenstein Series*  
with Minors in Economics and Educational Studies

**Jahsaiah Chozen Noel-Moses**

Biology: *Understanding Intracellular Localization Patterns of Endosymbiotic Bacteria by Comparing Subcellular Distributions of Wolbachia and Microtubules in Drosophila Embryos*  
with a Minor in Health Studies

**Nicholas Bayan Mostaghim**

Chemistry: *Investigating the Role of Helix III Mutation in Acyl Carrier Protein Conformational Dynamics and Protein Binding in Type II Fatty Acid Biosynthesis*  
with a Minor in Religion and a Concentration in Biochemistry

**August Muller**

Physics: *Catching the Waves: Markov Chain Monte Carlo Methods for Finding Extreme Mass-Ratio Inspirals With the LISA Gravitational Wave Observatory*  
with Minors in Astronomy and German and German Studies, and a Concentration in Scientific Computing

**Carlos A. Muniz**

Biology: *Investigating the Chemically Mediated Protection of *Emiliania huxleyi* From Viral-Induced Mortality*  
with Minors in Chinese Language and Health Studies

**Carolena Alexander Muno**

Anthropology: *Alongside Other Harmonies: Art as a Means of Growth, Advocacy, and Justice for Philadelphia Youth*  
with a Minor in Health Studies

**Lili May Rachel Muntean**

Psychology: *Social Norms, Self-Monitoring, and Commitment: An Expansion of the Investment Model of Commitment*  
with a Minor in Visual Studies

**Ryan William Murphy**

Political Science: *Capture the Flag: Hierarchy, Bargaining, and the Internationalization of Chinese State-Owned Enterprises*  
with a Minor in Economics

**Kennedy Kiplangat Mutai**

Economics: *Preferences Among NFL Fans: Skin Tone and Merchandise Sales*  
with a Minor in Africana Studies at Bryn Mawr College

**Andrew Naiman**

Mathematics: *Graph Planarity and the 5-Color Theorem*

**Abhinav Nallapareddy**

Economics: *Can Sports Help Decrease Civil Conflict? Evidence From International Cricket*

**Ella Beatrice Namour**

History: *"Matter Useful, Curious, and Entertaining": The Almanac as a Tool of Community-Building and Political Engagement*  
with a Minor in Classical Culture and Society

**Lucas Leatherman Nelson**

Physics: *Multi-Scale Structure of SuperEllipse Sector Particles in a Rotating Drum*  
Mathematics at Bryn Mawr College  
with a Concentration in Scientific Computing

**Alexander Jacob Neuschotz**

Classical Languages: *Canine Connections: Perceptions of Dogs and Dog Symbolism in Homer and Hesiod*  
Mathematics: *On Cyclically Fully Commutative Elements of Coxeter Groups*

**Michiko Ng**

English: *Necromancing Mary*  
with Minors in Educational Studies and Neuroscience, and a Concentration in Creative Writing

**Olufemi Obiwumi**

Computer Science: *Topic Modeling for Computer Vision*



**Natalie Rose Olivieri**

Biology: *Investigating the Immune Mechanisms Underlying Adverse Outcomes of Congenital Viral Infections*  
with Minors in Health Studies and Psychology

**Robert Albin Olson**

Economics: *Political Equilibrium in a Turnout Model of Political Competition With Advertising*  
with a Minor in Philosophy and a Concentration in Mathematical Economics at Bryn Mawr College

**William Michael O'Malley**

Economics: *"I Went to a Fight and a Hockey Game Broke Out": An Analysis of the Effects of Fighting on Attendance in the NHL in 2022*

**Saúl Ontiveros**

History: *Fashioning Desert Imperialism: Migrant Clothing and Knowledge in 1980s U.S.-Mexican Borderland History*  
with a Minor in Health Studies

**Alfredo Rafael Ortiz de la Rosa**

Mathematics: *Modeling Brain Features Across Adolescence With GAMLSS*  
with a Concentration in Latin American, Iberian, and Latinx Studies

**Kendall Elizabeth Otridge**

Environmental Studies: *A Community Gardens Guidebook for the Ardmore Victory Gardens*  
with Minors in Health Studies and Psychology

**Kendall Ozorowski**

Biology: *Exploring Post-Transcriptional Control of Amino Acid Transporters and Autophagy*  
with a Minor in Health Studies

**Marcos Antonio Padron-Curet**

Spanish: *Cosmopolitas contra el Imperio: Algunos trazos de Praga en la geografía cultural del Boom latinoamericano*  
French and Francophone Studies at Bryn Mawr College: *Entre métèques et cosmopolites: La place de Paris dans l'imaginaire des écrivains du Boom latino-américain*  
Romance Languages at Bryn Mawr College

**Mitchell Wu Pagano**

Neuroscience: *Neural Correlates of Dysphoria and Mind Wandering*

**Celia Avery Page**

Economics: *An Examination of Discrimination in the Premier League*

**Celine Pak**

Classical Languages: *A Feminist Exploration of the Mother-Daughter Relationship in Euripides' Elektra*  
Comparative Literature

**Michelle Mae Soberano Panaguiton**

Biology: *Comparing Pollen Nutritional Quality Between Diploid and Polyploid Monkeyflower Species*  
Fine Arts: An exhibition entitled *A Reinterpretation of Philippine Creatures*

**Ava Panetto**

Neuroscience: *Developing a 3D Rodent Object Categorization Paradigm to Investigate Cholinergic Involvement*  
Transnational Italian Studies at Bryn Mawr College

**Carley Elizabeth Parsons**

Chemistry: *Synthesis Towards a Non-Peptide Peptidomimetic of the Endogenous Opioids: A Painkiller Without the Constipation*  
with a Minor in Classical Studies

**Darshan Patel**

Astronomy and Physics: *Constraining Properties of Subluminal Lasers for Use in Dark Matter Detection*

**Lisette Tuyet Nhung Ngoc Pham**

Biology: *Investigating the Link Between Alzheimer's Disease and Sleep Deprivation*  
with a Minor in Linguistics

**Susanna Louise Pieper**

Psychology: *Internal Tempo in the Workplace: The New Frontier for Professional Efficiency*  
with a Minor in Data Science at Bryn Mawr College

**Olivia Jane Pindzola**

Biology: *Investigating Tau Pathology Across Alzheimer's Disease Duration in a Mouse Model*  
with a Minor in Linguistics

**Ankith Suhas Pinnamaneni**

Computer Science: *Rethinking K-12 Computer Science Education*  
with a Minor in Economics

**Juan Miguel Pinto Diaz**

Growth and Structure of Cities at Bryn Mawr College: *United in Violence: Conflict, Confusion, and Storytelling in the American Road Trip*  
with a Minor in Philosophy at Bryn Mawr College

**Eden Pleasure-Kranowitz**

Classical Culture and Society: *The Woman They Made Myth About: Medea and the Power of Retelling in Euripides and James Ijames*

**Alana Teresa Ponte**

Chemistry: *Progress Towards Incorporating an L-Homopropargylglycine Alkyne Probe in N-Terminally Acetylated Alpha-Synuclein via Auxotrophic Expression*  
with a Minor in Health Studies and a Concentration in Biochemistry

**Asher Porphy**

Economics: *The Impact of Mobile Money Proliferation on Women's Savings Propensities in Uganda*

**Logan Alexander Post**

Mathematics: *On Zero-One Laws in Random Graphs*  
with a Minor in Physics

**Joslynn Provow**

Mathematics: *Ramsey Games and Their Strategies*

**Ryan Quenemoen**

History of Art at Bryn Mawr College:  
*The Augmented Self at the Disintegrating Boundaries Between Virtual and Physical Worlds in Peter Burr's Arcology*  
with a Minor in Chinese Language

**Nicolas S. Ramos-Zapata**

Spanish

**Danika Nicole Rasmussen**

Astrophysics: *A NICER Analysis of Three Pulsars*  
Fine Arts

**Isabel Kusum Ray**

Neuroscience: *ALS-Associated Aggregation and Sleep: C9orf72 Poly-PR Aggregates Disrupt Circadian Rhythm Gene Expression in Drosophila melanogaster*  
with a Minor in History of Art at Bryn Mawr College

**Alexander William Rebhun**

Growth and Structure of Cities at Bryn Mawr College: *Reinventing the Wheel: Information Exchange in Small-Town Bicycle Infrastructure*

**Alex Reichard**

Computer Science: *Visualized Functional Programming Through Substitutional Concepts*

**Meinhardt Urs Merlin Rentrup**

Political Science: *The Politics of Sport: When Soccer Ultras Take Action*  
with a Minor in Economics

**Maria Reyes Torres**

Environmental Studies  
with a Minor in Growth and Structure of Cities at Bryn Mawr College

**Colin Vincent Riley**

Political Science: *The Environmental Protection Agency in Court: Evaluating Judicial Change in EPA Lawsuits*  
with a Minor in Educational Studies

**Rubí Samanta Rivas Guamán**

Biology: *Passive Intrusion of Granular Media Using Bio-Inspired Zebra-Tailed Lizard (Callisaurus draconoides) Foot Model Shows Foot Flexibility Affects Intrusion Dynamics*  
Spanish: *¿Se puede hablar de lo cuir en comunidades kichwa? Un análisis de cuatro obras de arte kichwa con un enfoque en el género y la sexualidad*

**Kayla Michelle Robinson**

Economics  
with a Minor in Biology at Bryn Mawr College

**Nathan Wesley Rose**

Biology: *Exploring the Mechanism of YBX3-Mediated Translational Repression of a Target Transcript*

**Madeleine Rosen**

Political Science: *Out of the Shadows and Into the Light: How U.S. Lower Courts Treat Deviations From Supreme Court Procedural Regularity*  
with a Minor in Sociology

**Jade Rousseau**

Computer Science: *Fairness in Information Access: Emphasizing the Network*  
Philosophy: *Leaps in Perception: Towards a Philosophy of Imaginatively Endowed Perceiving*

**Naren Sebastian Roy**

Anthropology: *Existing Between Two Worlds: How Haverford College Students and the Center for Peace and Global Citizenship Navigate Social Justice Work*  
with a Minor in Visual Studies and a Concentration in Latin American, Iberian, and Latinx Studies

**Dorothea Grace Rugg**

Mathematics: *On the Nonorientable 4-Genus of Pretzel Knots*

**Ivan Atilano Ruiz**

Biology: *Using RNAScope as a Novel Technique to Compare In-Situ Spatiotemporal Patterns of RNA Expression During Gastrulation in Drosophila melanogaster and Anopheles gambiae Embryos*

**Jack McDonough Ryan**

Economics: *Household Donations During Economic Uncertainty: Examining the Relationship Between the 2008 Recession and Household Donations by Sector* with a Concentration in Peace, Justice, and Human Rights

**Alyssa Saito**

Psychology: *Marketing Homes in Real Estate: Influencing Consumer Behavior Through Social-Cognitive and Perceptual Psychology* with a Minor in Health Studies

**Hipolito “Hip” Casarez Salazar**

History: *Noxious Remains and the Farmworker Body: How the United Farm Workers’ Rhetoric Using Body Politics Gave Rise to a Ban on Pesticides*

**Grace Elizabeth Salgado**

Environmental Studies: *Climate Resilience in New York City: Addressing Environmental Injustices in NYC’s Low-Income Housing Through Climate Policy* with a Minor in Economics

**Giovanni W. Santalucia**

Political Science: *Understanding the Resilience of Electoral Populism: Populist Recurrence in Brazil*

**Spencer Alexander Sapir**

Economics: *The Effect of Market Volatility on Equity Offerings Across Different Industries*

**Nicholas F. Scardigno**

Economics: *The Optimal Contract: A Dive Into Potential Inefficiencies in the MLB Free-Agent Market* with a Minor in Environmental Studies

**Ashley Scheffer**

Physics: *Oxygen Minimum Zones in the California and Humboldt Upwelling Systems Linked to Changes in Atmospheric Circulation* with a Minor in Environmental Studies and a Concentration in Biophysics

**Rachel Rock Schiffer**

Political Science: *The Abrams Playbook: Georgia as a Model for a New Strategy in Democratic Politics* with a Minor in Environmental Studies and Concentrations in Gender and Sexuality Studies and Peace, Justice, and Human Rights

**Avi Serebrenik**

English: *A Call to Dance: The Transformative Power of Dreams and Grief in Paula Vogel’s The Baltimore Waltz* with a Minor in Computer Science at Bryn Mawr College

**Layan Imad Ali Shaban**

Chemistry: *Synthesis of an Activity-Based Protein Profiling Probe Through the Application of (R)-Dysidazirine’s 2H-Azirine Ring* Peace and Conflict Studies at Swarthmore College: *Representation of Muslims: Western Media Versus Lived Experience*

**Jordan Marlon CeJae Shand**

Computer Science: *A Game Theoretical Investigation Into Convergence Instability of Generative Adversarial Nets* with a minor in Mathematics at Bryn Mawr College

**Anubhav Sharma**

Computer Science and Mathematics: *Finite Field Arithmetic and Its Applications to Cryptography*

**Selena She**

Mathematics at Bryn Mawr College: *Language Models Show Within- and Cross-Language Similarities in Concrete Noun Meaning, But Not Differences Between L1 and L2 English Speakers* Cognitive Science at Swarthmore College

**Edward Shin**

Psychology: *Bottom-Up Ethnic-Racial Socialization in Asian American Families: Strategies, Outcomes, and Relations to Culture Brokering* with a Minor in Computer Science at Bryn Mawr College

**Rasaaq Shittu**

Economics: *Rendering Reimbursement: A Theoretical Approach to Centralized Telehealth Policy* with a Minor in Philosophy at Bryn Mawr College

**Samantha Amanda Silverman**

Computer Science: *Analyzing Passing Patterns and Player Space Occupation to Determine if They Are Key to a Soccer Team’s Victory* Mathematics: *Modeling Debris Flow After Fires Through Ordinary and Partial Differential Equations*

**Cyrus Xavier Slavin Bangasser**

Neuroscience: *What Is the Neurological Basis for Risk-Averse Behavior and How Does It Affect Risk-Versus-Reward Decision-Making?* with a Minor in Film Studies at Bryn Mawr College

**Jared Zachary Sloan**

Anthropology: *Yesh Breira/There Is an Alternative: Towards the Development of Anti-Zionist Jewish Community* with a Minor in Mathematics

**Julia Ann Smeltzer**

Biology and Environmental Studies: *Impact of Global Change Factors on Phenotypic Traits of Phragmites australis and the Eco-Evolutionary Implications*

**Ashton Guillory Smith**

Economics: *An Analysis of Business Combinations Within the Automobile Manufacturing Industry: The Effects of Mergers, Acquisitions, and Alliances on Firm Performance and Value*  
with a Minor in Mathematics at Bryn Mawr College

**Caroline Slusar Smith**

Chemistry: *The Design and Synthesis of a 2H-Azirine Chemical Probe Based on a Dysdazirine Scaffold*  
with a Concentration in Biochemistry

**Logan Earl Smith**

Chemistry: *Explicit Polarization Improves Solvation Structure, Dynamics, and Spectroscopy in Molecular Dynamics Simulations of Carbon Dioxide in Ionic Liquids*  
with a Concentration in Biochemistry

**Maisie Whitman Smith**

Biology: *lphaFold Predictions Fail to Identify Transmembrane Targets for Streptococcus pneumoniae Paired Type IIb Bacteriocins*  
with a Concentration in Biochemistry

**Sarina Marie Smith**

Biology: *Investigating Caenorhabditis elegans as a Model for TBCK Syndrome, a Pediatric Neurogenetic Disorder*  
with a Minor in Health Studies

**Theodore Smith**

Psychology at Bryn Mawr College: *Malleability Matters: The Effects of a Holistic Self-Control Intervention and the Moderating Role of Implicit Theories*  
with a Minor in Educational Studies

**Delaney Shea Snowden**

Biology: *Using Drosophila melanogaster as a Model for NMDA Receptor Dysfunction in Alzheimer's Disease*  
with a Minor in Neuroscience

**Dylan Soemitro**

Computer Science: *A Spectral Clustering Approach to Cluster Mixed-Type Datasets*

**Aviva Camras Rowe Soll**

Biology: *Application of Environmental DNA and Geochemistry for Assessment of Acid Mine Drainage Remediation Efficacy in New Philadelphia, Pennsylvania*  
with a Minor in Geology at Bryn Mawr College

**Paul Walker Soulanille**

Computer Science: *On the Construction of Polar Codes*  
with a Minor in Mathematics

**Trea Venus St.Hillaire**

Biology: *Testing Environmental Conditions That Affect Crithidia fasciculata Adhesion in an In Vitro Model of the Gut of Mosquitoes*  
with a Minor in Classical Culture and Society

**Andrew William Stephens**

Political Science: *The Republican Party Has Been Hijacked by the Alt-Right*

**Jacquelyn Stifelman**

Neuroscience: *Early Psychosocial Deprivation, Cortical Development, and Cognitive Flexibility in Adolescence: Evidence From the BEIP Randomized Control Trial*  
with a Minor in Chemistry

**Claire F. Stohlman**

German and German Studies: *Eine Untersuchung von der Repräsentation ostdeutscher nationaler Identität in den ostdeutschen „Indianerfilmen“*  
with a Minor in Film Studies at Bryn Mawr College

**Alexandra Michelle Streicher**

Biology: *To Bee or Not to Bee: Unexpected Bumblebee Preference Changes in Indoor Pollination Experiments With a Mimulus Hybrid*

**Pranith Reddy Sudini**

Political Science: *Selective Humanitarianism: A Comparative Study of U.S. Intervention in Somalia and Rwanda*  
with Minors in Economics and Philosophy

**Yuxuan Sun**

Computer Science: *Implementation of Diffusion Model and GLOM on Generating Population Genetics Data*  
Mathematics: *The Connections Between Demazure Crystals and Schubert Polynomials*

**Macintyre Sunde**

Computer Science

**Brandon Sung**

Biology: *Supporting an S-Phase Mechanism for Oligonucleotide Directed Mutagenesis (ODM): Using Supraoptimal Temperature and Light/Dark Cycles to Increase ODM Efficiency in Chlamydomonas reinhardtii*

**Janani Suresh**

Anthropology: *The Pedagogy of Political Science*  
 Education: *How Modern Scholarship Affects BIPOC, Women, Queer, Low-Income, and Disabled Students at Haverford College*  
 with a Minor in Education at Bryn Mawr College and a Concentration in Peace, Justice, and Human Rights

**Lillian Sweeney**

History: *"A Little Irish Cailín in an Ould Plaid Shawl": The "Colleen" Archetype and the Construction of Irishness*

**Joseph Tadrous**

Computer Science: *Image Segmentation Using Deep Learning*

**Shi Jie Samuel Tan**

Computer Science and Physics: *Resilience of Surface Codes and Quantum Error Correction*  
 Mathematics at Bryn Mawr College

**Nicholas Antonio Taylor**

Philosophy: *Traumatic Temporalities: Intersubjective Meaning and Interpreting the Other*  
 with a Minor in Psychology

**Bianca Carmelita Teves**

Mathematics: *Fully Commutative Kazhdan-Lusztig Cells via Temperley-Lieb Diagrams*  
 with a Minor in Literatures in English at Bryn Mawr College

**Catherine Grace Tomson**

History: *Motherwork in a Community of Care: The Midwife as a Public Figure in Early America*  
 with Minors in Health Studies and Dance at Bryn Mawr College

**Grayson Toole**

English: *Embracing Queer Failure and Reaching for Queer Utopia Within Chen Chen's Poetry*  
 with a Minor in Anthropology

**Nathan Patrick Torres**

Chemistry: *The Economic and Environmental Consequences of Metals in Plastics*  
 with a Minor in Economics at Bryn Mawr College

**Kristina Tran**

Chemistry: *Synthesis and Characterization of a Bidentate Ligand With Two Guanidines, oBIM2DAP*  
 with a Concentration in Biochemistry

**Mimi Tran**

Growth and Structure of Cities at Bryn Mawr College: *Unsettling Home: The Vietnamese Refugee Settler Condition in the U.S. Gulf South*  
 with a Minor in Environmental Studies

**Nico Tripeny**

Mathematics: *Predicting NCAA Division III Men's Cross Country Championship Results Using Random Effects*  
 with Minors in Classical Culture and Society and Statistics

**Ryan Claude Trotter**

Computer Science: *Evaluating the Effect of Training Data on Bias in Generative Adversarial Networks*

**Ivan Tseytlin**

Computer Science: *Effective Resistance Metric for Networks: Graph Formalism, Algorithms, and Applications for Granular Materials*  
 Physics: *Contextual Extension for Optimal Energy Control Models of Cerebral Cortex Networks*  
 with a Minor in German and German Studies

**Katelyn Tu**

Neuroscience

**Nancy Tucker**

Economics: *The Effects of New Jersey's FLI and TDI Benefits on the Earnings and Labor-Force Participation of Parents*

**Mackenzie Tygh**

Physics: *Sacred-Secular Dialectics in Spacetime: Medieval and Modern Notions of Causality in Dante's Paradiso*  
 with a Minor in Astronomy

**Isha Upender**

Biology: *Investigating the Mechanism of Action of a Novel Marine Antimicrobial Drug*  
 with a Minor in Neuroscience

**Kaila Uyeda**

Mathematics: *Analysis and Modification of a Sinking Model for Biofouled Particles in the Ocean*  
 with a Minor in Health Studies

**Tej Vaddi**

Economics: *Impact of the Inflation Reduction Act on Novel Oncology Drug Development*  
with a Minor in Mathematics at Bryn Mawr College

**Benjamin Craig Valenti**

Computer Science at Bryn Mawr College:  
*GrAEDU: An Alternative Grading System*  
with a Minor in Mathematics at Bryn Mawr College

**Elijah M. Vega**

English: *More Than Music: Kendrick Lamar's To Pimp a Butterfly*

**James O'Malley Vickery**

Physics: *Kelvin Probe Force Microscopy and Photoelectric Porphyrin Nanorods*  
Mathematics at Bryn Mawr College

**Lucas Doug Jone Voit**

History: *A Fleeting Heimat, Yet an Enduring Impact: A Spatial and Legal Analysis of the Lasting Effects of Germany's Kiautschou Bay Leased Territory*  
with a Minor in Environmental Studies

**Martin Vollmayr-Lee**

Mathematics: *An Analysis of Lehmer's Conjecture Through the Hecke Algebra*

**Tien Hoa Vu**

Neuroscience: *Exploring the Effects of Camellia japonica Extract on Protein Aggregation in a Caenorhabditis elegans Model of Alzheimer's Disease*  
with a Minor in Health Studies

**Khalil Ayele Walker**

Philosophy: *Coping With Mortality: An Argument for a Stoic Lifestyle*

**Sophia Wan**

Anthropology: *Standing Our Ground: Choreographing Legacies of Land and Cultural-Political Activism in Philadelphia's Chinatown*  
with a Minor in Visual Studies

**Claude-Annaeus Jiawen Wang**

Chemistry: *Characterizing the RET/GDNF Pathway in Kidney Organogenesis With Single-Cell Western Blotting*  
with a Minor in Japanese Language

**Wenyun Wang**

East Asian Languages and Cultures: *The Rise of Peasant Nationalism in Chinese Rural Areas During World War II*  
with a Minor in Fine Arts

**Xiaorong Wang**

Computer Science: *Pre-Training and Fine-Tuning BERT: Energy and Carbon Considerations*  
Mathematics: *Topological Data Analysis and Its Applications*

**Yimeng Wang**

Linguistics: *Intonation Pattern of Declarative Questions in Mandarin Conversational Speech*  
Mathematics at Bryn Mawr College

**Yufan Wang**

Philosophy: *True Solidarity and bell hooks' Engaged Pedagogy*  
with a Minor in Psychology

**Benjamin Ward**

Economics: *Soccer Transfers and Performance in the Premier League: How Popularity Affects Transfer Fees*

**Isaac Riley Wasserman**

Computer Science: *Graphically Guided Neural EM Segmentation*

**Gabrielle Karin Watkins**

Environmental Studies: *Designing and Teaching Environmental Education Lessons for Preschool: Animals, Birds, Plants, and Nature Appreciation*

**Madeline Elizabeth Webster**

Computer Science: *Examining Usability Testing of Internet of Things (IoT) and Augmented Reality (AR) Assistive Technologies for Users With Motor Disabilities*  
with a Minor in Anthropology and a Concentration in Peace, Justice, and Human Rights

**Alden Blatt Weinberg**

Physics: *Aggregate Formation Within an Acoustic Field*  
with a Minor in Visual Studies

**Jack Ross Weinstein**

Political Science: *The Great White Roots: Haudenosaunee Influence in Western Political Theory*  
with Minors in Environmental Studies and Growth and Structure of Cities at Bryn Mawr College

**Harrison Kobe Weinstock**

Computer Science: *Exploring Functional Graph Representations for Max Flow*  
Mathematics: *Algorithmic Transit Optimization: Evolutionary Algorithms Applied*

**Thomas R. Whelan**

Economics: *The Effects of Global Uncertainty Factors, Local Financial Variables, and Global Financial Market Variables on the CDS of PIIGS Countries*



**Eva M. White**

Physics: *Designing a Microgrid for Haverford with Minors in Global Asia and Environmental Studies*

**Natalie White**

Film and Media Studies at Swarthmore College: *Amplifying the BIPOC+ Voice and Self Through Podcasting: An Analysis of Black and Indigenous Communities Using Podcasting as a Form of Representation, Resistance, and Self-Healing*

**Eric Whyman**

Mathematics: *Persistent Homology*  
 Physics: *Multiparameter Persistent Homology and Granular Materials*  
 with a Minor in Linguistics

**August Bang Williams**

Political Science: *The Modern Smoked-Filled Room: The Primary Endorsement Process at the Local Level*

**Davion Marquise Williams**

Chemistry: *Exploratory Work With Templated Vanadium Selenites as Host System for New Hybrid Materials*

**Sharon Gwendolyn Williams**

Psychology at Bryn Mawr College: *An Analysis of Criminal Psychopathology: Who's Targeted and Why*

**Liana Wilson-Graff**

Independent Major in Dance: An original dance entitled *Body A/part* and an essay entitled *Spontaneity as a Site for Change: Reflections on the Dancing Body in Afro-Cuban Rumba and Body A/part*  
 with a Minor in Literatures in English and a Concentration in Africana Studies, both at Bryn Mawr College

**Annemarie Wood**

Biology: *The Influence of Biofouling on the Degradation of Marine Plastic Debris*  
 with a Minor in Environmental Studies

**Aaron Jonathan Xu**

Physics: *Agent-Based Modeling for a Simple Habitat Fragmentation Scenario*  
 with a Minor in Environmental Studies and a Concentration in Biophysics

**Clarice Xu**

Biology: *Correction of Polyalanine Mutations in the ARX Gene Using CRISP/Cas9 in Primary Cells of ArxGCG7/Y Mice*  
 with a Minor in Psychology

**Lyvia April Yan**

Philosophy: *The Blameworthiness of Psychopaths Based on Moral Responsibility*  
 with a Minor in Visual Studies

**Reese Yau**

English: *Tender Flesh: Theorizing the Hybrid Embodied Poetics of the Asian American Queer Femme in Franny Choi's Soft Science*  
 with Minors in Anthropology and Asian American Studies

**Olivia Lilikalani Yoshida**

Biology: *Automated Image-Analysis Software Elucidates Cell Targets of a Novel Antibiotic*

**Caroline Gabriela Young**

Anthropology: *Reworking the Canon: Exploring Young Women's Negotiations of Power in Fan Fiction*  
 with a Minor in Educational Studies

**Emilia Maria Zegers Matthews**

Music: A violin recital featuring works by Beethoven, Persichetti, and Mozart  
 with a Minor in Psychology

**April Zeng**

Psychology: *A Mixed-Methods Longitudinal Investigation of College Turning-Point Narratives*  
 with a Minor in Health Studies

**Carrie Zhang**

Linguistics: *Viable Verbs and Adjectives for Mandarin Reduplication*  
 with a Minor in Transnational Italian Studies at Bryn Mawr College

**Angela Zhang Qianhui**

Sociology: *Manufacturing Art Museums: Labor Organization and the Division of the Labor of Domination in American Art Museums*  
 with a Minor in Political Science at Bryn Mawr College

**Margin Tianya Zheng**

Mathematics: *Finite Geometry and Applications to Coding Theory*  
 Music: A recital on piano and harpsichord, with an original composition entitled *Sound and Story*

**Cathy Zhu**

Anthropology: *Hot Woks and Golden Palaces:  
Navigating Ethnic Identity, Family, and Coming-of-  
Age in the Chinese Takeout Restaurant*

Psychology: *"Mom, Dad—We Need to Talk":*

*Exploring How Asian American Youth Talk to  
Their Immigrant Parents About Race*

with a Minor in Asian American Studies

**Andrew Lee Zolensky**

Philosophy: *Expected Utility and Moral Attitudes*

Mathematics at Bryn Mawr College

**Yiting Zou**

Computer Science: *Topic Modeling in Image  
Segmentation*

Mathematics at Bryn Mawr College

*Completion of graduation requirements may not be confirmed by this program, as the college transcript serves as the sole official student record. Furthermore, this program only includes those thesis titles submitted by students before the print deadline.*



## WELCOME FROM THE ALUMNI ASSOCIATION

On behalf of the almost 15,000 alumni who incorporate Haverford values into our professional, personal, and public lives, we are thrilled to welcome the members of the Class of 2023 to the alumni community! Congratulations to each of you on forging the auspicious path that has led you to this day. The Alumni Association Executive Committee (AAEC) plays a key role in building and maintaining lifelong relationships between alumni and the College, bridging generations of graduates, and providing career and coaching assistance to current students. We look forward to meeting you at upcoming alumni events and counting you all as our newest members.

*—Beverly Ortega Babers, Esq. '84, President, on behalf of the AAEC*

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### Thank you to our Senior Commencement Committee Representatives

Yousef E. Almbaid  
Erin Reingold Martin  
Aviva Camras Rowe Soll

## ACADEMIC REGALIA

On ceremonial occasions, scholars wear academic gowns indicating the level of their degree and hoods indicating the field of the degree and the institution granting it. The origins of academic regalia date back to the 12th century, when gowns and hoods provided a layer of warmth in cold stone buildings. While observers may not be able to easily decipher each aspect of the regalia, they can readily appreciate the gowns, caps, and hoods as an expression of homage to more than 800 years of academic tradition.

### Gowns

- At U.S. colleges and universities, the bachelor's gown is simply cut, with open, pointed sleeves.
- The master's gown is fuller, with oblong, square-cut sleeves and two horizontal bars on the sleeve.
- The doctor's gown is long, full-cut, with bell-shaped sleeves. It has velvet panels down the front and three horizontal bars on the sleeve, which are typically black, but occasionally feature the color indicating the field of learning. Some panels feature the seal of the institution. British doctoral regalia often feature an open front and no bars on the sleeves.
- The college or university president's gown is distinguished by four horizontal bars on the sleeve.
- Doctoral gowns are often black, but sometimes are a distinctive color representing the degree-granting institution, for example: Harvard's crimson; North Carolina's, Michigan's, Berkeley's, and Columbia's various shades of blue; Princeton's black and orange; Oxford's and Pennsylvania's red and blue; or Chicago's maroon.

### Caps

All academic degree holders wear the mortarboard cap or the softer tam, which often feature tassels, though some universities abroad distinguish their degree holders with more unusual headgear.

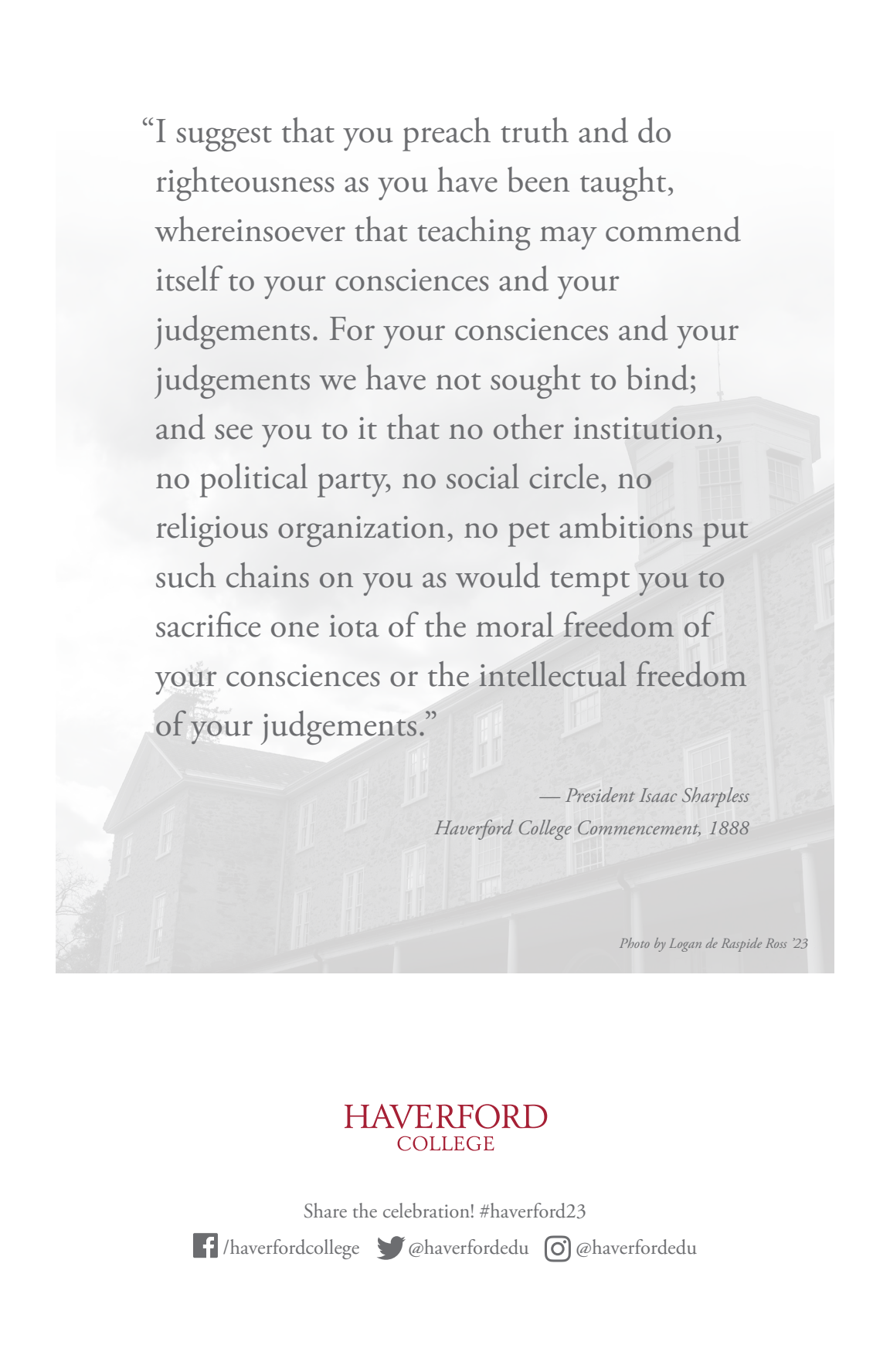
### Hoods

- The inner lining of the hood carries the color or colors of the institution that granted the degree, with multiple colors divided in chevrons.
- The color of the velvet border indicates the field of learning in which the degree was earned. Dark blue indicates philosophy; white, arts, letters, and humanities; golden yellow, science; scarlet, theology; purple, law; brown, fine arts and architecture; pink, music; green, medicine; copper, economics; lemon, library science; salmon, public health; light blue, education; and drab, business. Those who have attained a Doctor of Philosophy (Ph.D.) wear the dark blue of philosophy, even when their specific focus is not philosophy. For those individuals, the edging color of their hoods or the color of their gown panels may reflect the field of learning.

### Haverford Examples

- President Wendy Raymond's robes are Haverford's red and black, with four bars, befitting her role as president. As her Doctor of Philosophy (Ph.D.) is from Harvard, her hood is bordered in dark blue and features Harvard's crimson in the hood liner.
- As Provost Linda Strong-Leek's Doctor of Philosophy (Ph.D.) is from Michigan State University, her robes are Spartan Green. Her gown's three bars indicate her doctoral degree; her hood's blue border represents her Ph.D., and its white satin edging signifies her field, English.



A faded, grayscale background image of a large, multi-story brick building with many windows, likely Haverford College. The building has a prominent central tower and a covered walkway on the right side.

“I suggest that you preach truth and do righteousness as you have been taught, whereinsoever that teaching may commend itself to your consciences and your judgements. For your consciences and your judgements we have not sought to bind; and see you to it that no other institution, no political party, no social circle, no religious organization, no pet ambitions put such chains on you as would tempt you to sacrifice one iota of the moral freedom of your consciences or the intellectual freedom of your judgements.”

— *President Isaac Sharpless*  
*Haverford College Commencement, 1888*

*Photo by Logan de Raspide Ross '23*

## HAVERFORD COLLEGE

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