



BOSTON COLLEGE

SCHILLER INSTITUTE FOR
INTEGRATED SCIENCE AND SOCIETY

ANNUAL REPORT

Academic Year 2022 (June 1, 2021 - May 31, 2022)



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MESSAGE FROM THE EXECUTIVE DIRECTOR

The 2021-2022 Academic Year was an exciting time for the Schiller Institute for Integrated Science and Society. This report illustrates the many ways the Institute focused on its mission to create and enhance interdisciplinary, collaborative activities across campus to address critical societal issues in the areas of energy, health and the environment.

The most visible activity was the January 2022 opening of 245 Beacon Street, a 150,000-sq-ft facility that is home of the Institute's administrative offices, Core faculty labs and offices. The building also houses the Computer Science and Human-Centered Engineering departments, the Edmund H. Shea Jr. Center for Entrepreneurship, makerspaces, core research facilities, and the Tully Family Cafe & Commons, along with ample classrooms and common areas. While the Institute had been in operation prior to the opening of 245 Beacon Street, the building's opening signified the next phase of the Institute's growth, providing space for research, teaching, and events. The building's location in the heart of campus solidifies the Institute's position at the literal and figurative crossroads of the university.

"The Institute's state-of-the-art laboratory and convening spaces are catalyzing ground-breaking research to fight the effects of climate change, spur the transition to renewable energy sources, and protect public health."

— Laura J. Steinberg, Seidner Family Executive Director

Throughout this report, you will see that the year was defined by far more than the opening of our new building. Our first cohort of grantees in the Schiller Institute Grants for Exploratory Collaborative Scholarship (SIGECS) internal seed grant program completed their research projects. The Global Public Health and the Common Good (GPH&CG) undergraduate minor continued to be one of the most popular academic programs on campus. We hosted a variety of virtual, hybrid, and in-person events, including a national conference to discuss interdisciplinary research buildings, panels highlighting BC's first ever delegation to the United Nations Climate Change Conference (COP), as well as events co-sponsored with our many campus partners.

I hope that you find this report both illuminating and inspiring, and that it leads you to reflect upon how each of us can grapple with and engage critical issues facing our world.

Laura J. Steinberg

RESEARCH

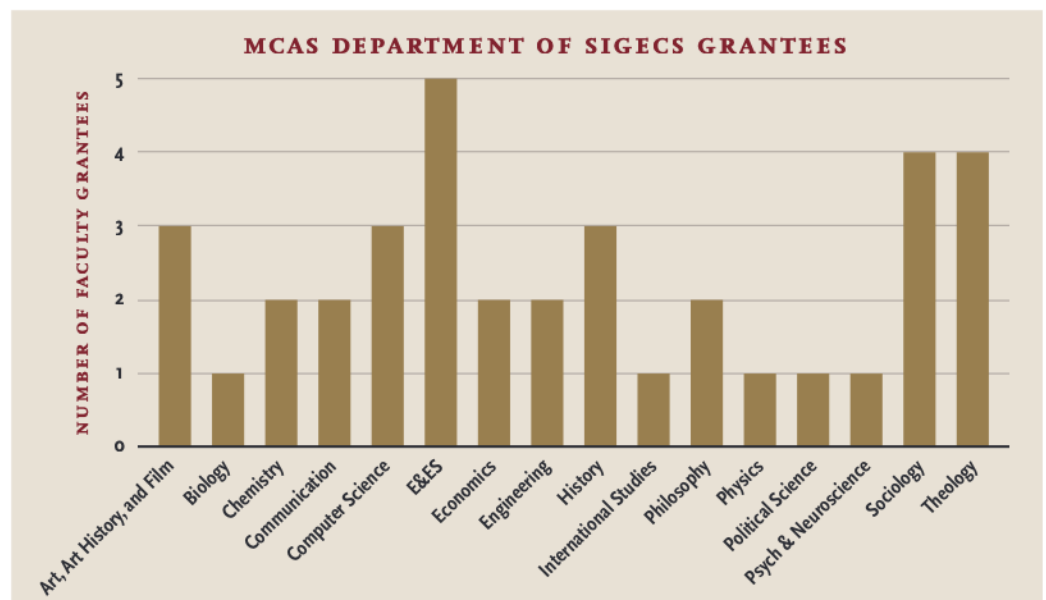
The Schiller Institute is committed to supporting BC faculty, students, and staff conducting interdisciplinary research through grant funding, training, and events aimed at connecting individuals with similar research interests across disciplines, schools and research methodologies.

Schiller Institute Grants for Exploratory Collaborative Scholarship (SIGECS)

The Schiller Institute **awarded 15 grants, totalling over \$410,000**, to faculty members across campus in its inaugural Schiller Institute Grants for Exploratory Collaborative Scholarship (SIGECS) program. The SIGECS program supports collaborative research projects and creative activities in the Institute's principal research focus areas of energy, health and the environment. This grant program recognizes that collaborative efforts of faculty/researchers who have different knowledge, perspectives, and expertise can make significant contributions to addressing inherently interdisciplinary societal issues.

The program includes two types of grants: Type 1 grants were awarded up to \$15,000 and Type 2 grants were awarded up to \$50,000. The awarded projects were selected from a very competitive pool of applicants (27 total proposals received). The funded projects included 59 faculty members from six of BC's schools: Carroll School of Management (1), Connell School of Nursing (4), Law School (2), Lynch School of Education and Human Development (9), Morrissey College of Arts and Sciences (37), and School of Social Work (6). Within MCAS, many departments were represented, as shown in the table to the right.

Summary of SIGECS grants awarded in AY22



SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>Hydropower and Its Environmental, Socio-economic, and Political Implications</p> <p>Ling Zhang (History)</p> <p>Noah Snyder (Earth and Environmental Sciences)</p>	<p>The research team collaborated on an interdisciplinary project to better understand hydropower and dams in historical, political, socioeconomic, and environmental contexts. The collaboration involved year-long dialogues and field trips to hydropower sites in China and the US. The collaboration has led to significant mutual learning and influenced the scholars’ research agendas. Key outcomes include:</p> <ul style="list-style-type: none"> • Zhang drafted several chapters of her book, including one titled “Bodily Geology: Dam, Bottled Water, and Packaging a Multi-Billion-Dollar Ecology” to be submitted as an article to a peer-reviewed academic journal (either <i>Environmental Humanities</i> or <i>Environmental History</i>) • Conversations informed Snyder’s long-term project on writing a book about global hydropower, dams and changing views of our energy future • 4 academic talks by Zhang (e.g., at the <i>Annual Conference of the Association for Asian Studies</i>) • A joint talk by Zhang and Snyder in October 2022 at Boston College’s climate change seminar group • Zhang invited as a visiting scholar at Fudan University (Shanghai, China) and a visiting fellow at the University of Cambridge (UK)
<p>Chelsea’s Child Wellbeing Initiative: A District-Community-University Partnership</p> <p>Rebecca Lowenhaupt (Educational Leadership)</p> <p>Gabrielle Oliveira (Teaching, Curriculum, & Society)</p>	<p>The project created and facilitated the Chelsea Children’s Cabinet in Chelsea, Massachusetts, to support youth wellbeing. Key outcomes include:</p> <ul style="list-style-type: none"> • Conducting a needs assessment and identifying three themes for supporting Chelsea youth: broadening extracurricular activities, increasing career preparation, and expanding mental health services • 5 conference presentations, e.g., at the <i>University Council for Education Administration Conference</i> • 3 grant submissions, including 2 granted: a \$45,000 Collaborative Fellowship at Boston College and a \$29,645 IGNITE grant • 1 manuscript in preparation for the <i>Journal of Community Practice</i> • Training the next generation through mentorship and cross-disciplinary experiences for MA and PhD students • Engaging with community stakeholders, presenting with district staff at national conferences, participating in public platforms, and supporting Phase II, which focuses on a citywide Mental Health Campaign

SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>Telehealth Beyond the Pandemic: The Human Work of Primary Healthcare Communication, Relationships, and the Value of the Human in Primary Care</p> <p>Ashley Duggan <i>(Communication)</i></p> <p>Monica O'Reilly-Jacob <i>(Nursing)</i></p> <p>Andrea Vicini <i>(Theology)</i></p>	<p>The research team aimed to explore the role of trust and communication in healthcare during the COVID-19 pandemic, focusing on primary care and telemedicine. The project involved interdisciplinary collaboration, grant applications, and conference presentations. Key outcomes include:</p> <ul style="list-style-type: none"> • 4 conference presentations; e.g., at the <i>50th North America Primary Care Research Group (NAPCRG)</i> • 2 manuscripts (1 published, 1 in prep); e.g., in <i>Journal of Health Ethics</i> • Fulbright Fellowship: Dr. Duggan will be a Senior Fulbright Fellow with the Royal College of Surgeons in Ireland, Spring 2023 • 4 grant proposals, 1 awarded: O'Reilly-Jacob, the <i>American Nurses Foundation's Reimagining Nursing Initiative</i> (\$1,065,000) • Multiple recognitions and appointments, including: Dr. Vicini as Chair of Theology Department at Boston College, Fellow of Collegium Ramazzini, and Dr. Duggan received the Hatfield / Berscheid mid-career award from the International Association for Relationship Research
<p>The Boston College Multidisciplinary Faculty Research Seminar on Climate Change</p> <p>Led by David Deese <i>(Political Science)</i></p>	<p>The Boston College Faculty Climate Research Seminar brought together interdisciplinary faculty and PhD students to address climate change through research collaboration. The seminar facilitated the exchange of ideas and insights, leading to new collaborations. Key outcomes include:</p> <ul style="list-style-type: none"> • 10 seminar meetings and 3 related meetings for faculty presentations on the UN COP 26 • Expansion of seminar participants to 32 faculty and PhD students, including new disciplines such as Chemistry, English, and Communications • Successful joint applications for new multidisciplinary Schiller Institute grants for 2022-2023 by some participants • Support for BC's delegation to UN COP 26 in Glasgow and preparations for UN COP 27 in Egypt • The seminar has fostered intellectual growth and strengthened connections across disciplines. While the first year focused on internal collaboration, the second year will expand the public program, including a newsletter, external speakers, and outreach to alumni networks.

SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>Engaging Elementary Students in Science Through the Stories of The Earth: Broadening Participation in Earth and Environmental Science</p> <p>Ethan Baxter <i>(Earth and Environmental Sciences)</i></p> <p>Katherine McNeill <i>(Teaching, Curriculum, and Society)</i></p>	<p>The project aimed to increase awareness and motivation for Earth and Environmental Sciences (EES) in elementary school children by funding Season Two of the YouTube series “Every Rock Has A Story,” created by Dr. Baxter. Each episode featured different rocks and their stories, with diverse co-hosts and supplementary educational content by Dr. McNeill. Key outcomes include:</p> <ul style="list-style-type: none"> • 17 new episodes for Season Two (2021), with 65 total episodes and over 40,000 views • Supplementary educational content and curriculum, including lesson plans, science journaling templates, and guides • 2 conference presentations, e.g. at the <i>Massachusetts Association of Science Teachers Annual Conference</i> • 1 peer-reviewed manuscript in revision for resubmission at <i>Science and Children</i> • Secured an IGNITE Grant from Boston College for Season Three of “Every Rock Has A Story” • Submitted a \$1.3M, 3-year NSF-AISL proposal to fund Season Four <p>The season received positive feedback from parents, teachers, and education professionals, and plans are underway for Season Three.</p>
<p>Injection Wells and Induced Seismicity in Historical Perspective</p> <p>Conevery Bolton Valencius <i>(History)</i></p> <p>John Ebel <i>(Earth & Environmental Sciences)</i></p> <p>Jonathan Krones <i>(Engineering)</i></p>	<p>The project investigated the relationship between oil and gas extraction, disposal of oilfield waste liquid, and earthquake activity. The team found evidence of early 20th-century earthquakes around new oilfields, not only near wastewater injection sites but also near sites where large volumes of oil had been pumped out. The researchers identified parallels between early 20th-century and early 21st-century fossil fuel extraction in the lack of information available about waste product disposal. Key outcomes include:</p> <ul style="list-style-type: none"> • Team members involved in a multidisciplinary project on communities and seismicity funded by an NSF Center of Excellence program • Contributions to a book on induced seismicity under contract with the University of Chicago Press • Wall label for artwork in McMullen Museum of Art highlighting the importance of energy systems • A potential joint USGS proposal in May 2023 by Dr. Ebel and Dr. Valencius as co-PIs, aiming to support summer work for two graduate students in Geophysics and History

SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>Using Human-centered Approaches to make Cloud Computing Green</p> <p>Lewis Tseng (Computer Science)</p> <p>Nam Wook Kim (Computer Science)</p>	<p>The project aimed to create a human-centered, eco-friendly cloud computing system focusing on networked entertainment systems. The researchers designed an interactive Content Delivery Network (CDN) that considers user preferences, tolerance to unavailability, and encourages energy-efficient behavior. A preliminary user study and a prototype user interface were developed. Key outcomes include:</p> <ul style="list-style-type: none"> • Conducted a preliminary user study with 36 students at Boston College • Developed a prototype user interface for eco-friendly video streaming • Created a customized simulator • Workshop presentation (peer-reviewed) at the <i>International Workshop on Networked Entertainment Systems (NES2022)</i> co-located with <i>IEEE International Conference on Distributed Computing Systems (ICDCS 2022)</i>
<p>Leveraging philosophical and folk conceptions of truth to improve science communication practices</p> <p>Liane Young (Psychology and Neuroscience)</p> <p>Richard Atkins (Philosophy)</p> <p>Daniel McKaughan (Philosophy)</p> <p>Mo Jang (Communication)</p>	<p>Researchers investigated how people ascribe truth to claims of fact based on the intentions they attribute to information sources and how to communicate scientific findings effectively. They found that people evaluate the truth of reports based on the information source's intentions and that the specific content of a scientist's values affects people's trust. Key outcomes include:</p> <ul style="list-style-type: none"> • 2 manuscripts being prepared for journal submission, one planned for submission to the <i>Proceedings of the National Academy of Sciences</i> • 4 conference talks, e.g. at the <i>Society for Philosophy and Psychology (SPP)</i> • Integration of the project's findings into relevant courses taught by Dr. Young, Dr. Atkins, and Dr. McKaughan • Isaac Handley-Miner (PhD student) received the Graduate Travel Award from the Society for <i>Personality and Social Psychology</i> for his poster presentation on work funded by this grant and was invited to present at the Trust & Influence Program Review for the <i>Air Force Office of Sponsored Research (AFOSR)</i> <p>Future steps include submitting manuscripts to peer-reviewed journals, continuing and expanding this research, presenting at conferences, and collaborating on further projects within the team.</p>

SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>Hierarchical Gaussian Process Regression for Meta-Learning of Molecular Geometry Optimization</p> <p>Junwei Lucas Bao (Chemistry)</p> <p>Jean-Baptiste Tristan (Computer Science)</p>	<p>The project focused on optimizing molecular geometry using Gaussian Process Regression (GPR) for machine learning algorithms. Despite computational resource limitations, the team has made significant progress, developing a new optimization method and the mad-GP library. Key outcomes include:</p> <ul style="list-style-type: none"> • 4 publications in academic journal articles, e.g. in <i>The Journal of Chemical Physics</i> • 2 conference presentations, e.g. at the Institute for Fundamental Research in Informatics • Development of the open-source mad-GP package and four datasets for public release • Dr. Bao secured a two-year external grant (American Chemical Society Petroleum Research Fund) working on machine learning for catalysts discovery on sustainable petroleum chemistry. • Training of 2 graduate students, 1 visiting student, 4 undergraduate students, and 1 postdoctoral researcher • Course development: “Introduction to Machine Learning with Applications to Chemistry” <p>The team plans to further develop mad-GP, seek external funding, and apply their research to complex conformational analysis, NMR predictions, atmospheric kinetics, and solid-state reaction pathway optimizations for catalysis.</p>
<p>Evaluating the Health Impacts of Disasters on Youth</p> <p>Betty Lai (Counseling, Developmental, and Educational)</p> <p>Summer Hawkins (Social Work)</p> <p>Christopher Baum (Economics)</p>	<p>The project aimed to understand the impact of Hurricane Sandy on youth mental health and health behaviors, examining mental health and health behaviors of 247,251 youth pre- and post-Hurricane Sandy using 2005-2019 data from the Youth Risk Behavior Survey. The study found that exposure to the hurricane had no significant impact on depressive symptoms and suicidality, but it did affect youth behaviors, such as substance use and screen time. Key outcomes include:</p> <ul style="list-style-type: none"> • 2 manuscripts in development, with one to be submitted to the <i>Journal of Affective Disorders</i> • 7 conference presentations (3 trainee-led), e.g. at the International Society for Traumatic Stress Studies Conference • 2 grant submissions, e.g. an R03 submission to the Eunice Kennedy Shriver National Institute of Child Health and Human Development • Research findings cited in 10 publications and media outlets, e.g., <i>Teen Vogue</i> • Collaboration between Dr. Lai and Dr. Hawkins led to guest lectures in each other's courses at Boston College • Public engagement, including Lai's invited talks at the <i>Society for Research in Child Development Conference</i> and the <i>National Academies Forum</i> • Dr. Lai was named a 2023 Public Voices Fellow with the Yale Program on Climate Change Communication

SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>Plasmonic Nanoantenna Electrodes for Probing Solar Fuel Catalysis</p> <p>Matthias Waegele (Chemistry)</p> <p>Kenneth Burch (Physics)</p>	<p>The goal of the project was to improve solar fuels production through enhancing efficiency and selectivity of electrocatalysts by identifying intermediate species that are involved in the reaction pathway. Researchers aimed to develop solar fuels using metal nanoarrays for surface-enhanced infrared absorption spectroscopy (SEIRAS) to monitor catalytic processes. Although the fabricated gold nanoarrays demonstrated a higher plasmonic enhancement than rough gold films, their smaller effective metal surface area resulted in a lower net absorbance signal. Further research is needed to improve the performance of gold nanoarrays. Key outcomes include:</p> <ul style="list-style-type: none"> • Active collaboration between 3 research teams (led by Dr. Burch, Dr. Waegele, and Dr. Wang), leading to cross-disciplinary discussions and joint grant applications • Inclusion of the plasmonic nanoantenna/array idea in a successful <i>Department of Energy</i> renewal application in June 2023 • Preliminary data produced with the nanosphere approach used in an <i>Office of Naval Research (ONR)</i>-funded project and included in the ONR renewal application • Establishment of the strengths and weaknesses of the nanosphere lithography approach, informing future experiment designs in related projects • Valuable scientific training and continued collaboration with graduate and undergraduate students <p>This project has implications for the development of more efficient and selective electrocatalysts, which are essential for the implementation of a carbon-neutral economy.</p>
<p>Developing Culturally-Tailored Interventions to Overcome Genomic Health Disparities in Communities of Color</p> <p>Andrew Dwyer (Nursing)</p> <p>Maria Pineros-Leano (Social Work)</p> <p>Sharlene Hesse-Biber (Sociology)</p>	<p>The project addressed human factors in communities of color to improve engagement in genomic healthcare. Researchers from nursing, social work, and sociology backgrounds collaborated on two interrelated projects, one focusing on genomic literacy among Latinx immigrants, and the other examining the BRCA “3 Cs” (coping, intrafamilial communication, and cascade screening). Key outcomes include:</p> <ul style="list-style-type: none"> • 4 publications in academic journal articles, e.g., in <i>Cancers</i> • 2 grant proposals submitted: one to the National Institutes of Health (NIH, R01) and another to <i>Macy Foundation Faculty Scholars Program</i> • Numerous presentations, e.g. at the <i>International Congress of Endocrinology</i> • Partnership with multiple breast cancer advocacy groups dedicated to eradicating racial and ethnic disparities in healthcare • Development of Spanish-only and English/Spanish versions of a research survey to widen the participant pool and combat disparities within the study

SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>An interdisciplinary evaluation of the health benefits of participating in a federally funded community-service employment program for low-income older adults: A pilot study</p> <p>Cal Halvorsen (Social Work)</p> <p>Elizabeth Howard (Nursing)</p> <p>Karen Lyons (Nursing)</p>	<p>The project aimed to document the multidimensional health and experiences of Senior Community Service Employment Program (SCSEP) participants in Massachusetts. The researchers successfully collected 89 unique survey responses from SCSEP participants aged 55 and older. Preliminary findings suggest that participants are generally happy with the program but struggle financially. The study has led to numerous collaborations and opportunities for future research. Key outcomes include:</p> <ul style="list-style-type: none"> • A peer-reviewed academic journal article in <i>Research on Aging</i> • A report of preliminary findings was prepared for the <i>Greater Boston Chinese Golden Age Center</i> and its sponsor, the <i>National Asian Pacific Center on Aging</i> • A late-breaking abstract submitted to the <i>Gerontological Society of America Annual Scientific Meeting (GSA)</i> that provides a descriptive analysis of Asian SCSEP respondents’ experiences in the program and their multi-faceted health and well-being • Budding relationships with the <i>National Asian Pacific Center on Aging and the Greater Chinese Golden Age Center</i>, which may lead to future research collaborations and professional growth opportunities for PhD student Patrick Lai • Dr. Halvorsen was invited to serve as an expert reviewer for the Urban Institute’s two-year, U.S. Department of Labor funded study of SCSEP
<p>Engaging families in growing their own food through home-based STEM learning experiences</p> <p>Mike Barnett (Teaching, Curriculum, & Society)</p> <p>Avneet Hira (Engineering)</p>	<p>The project designed a transdisciplinary learning environment where high school students served as mentors and teachers for their younger peers in STEM fields. The goal was to engage low-income youth and those historically excluded from STEM participation, ultimately fostering a stronger sense of self-efficacy and STEM identity. The study offers valuable insights on STEM identity and out-of-school intervention programs by examining the relationship between a student’s goals, sense of meaning, and their understanding of their impact on the community. Key outcomes include:</p> <ul style="list-style-type: none"> • The project engaged middle and high school youth along with their families in various learning sessions and activities throughout the year • Creation of the “LEAFS” website to support family engagement and continued learning • Undergraduate team member, Qinqwan Cheng, won the ACCelerate student fellowship for her work on the project • 2 conference presentations, e.g. at the <i>Canadian Science Teachers Association Conference</i> • 2 <i>National Science Foundation (NSF)</i> grant proposals submitted, leveraging this project: <i>Developing and Testing Innovations and Seeding the Future: Science for Learning for All Through Indoor Hydroponics</i> • Established collaboration with Dr. Lacey Satcher in the Sociology department and a partnership with the Charles River Museum of Industry and Innovation

SUMMARY OF SIGECS GRANTS AWARDED IN AY22

PROJECT NAME AND PRINCIPAL INVESTIGATORS	PROJECT ABSTRACT AND KEY OUTCOMES
<p>Assessing Public Health and Environmental Racism Impacts of Textile Pollution through Computer-Based Social Justice Research and Multi-Media Art and Data Dissemination</p> <p>Julia DeVoy (Counseling, Developmental, and Educational Psychology)</p> <p>Brian Smith (Teaching, Curriculum, and Society)</p> <p>Martin Scanlan, (Educational Leadership & Higher Education)</p> <p>Mark Cooper (Art, Art History, and Film)</p>	<p>The project aimed to address post-consumer textile pollution, an issue of environmental injustice, environmental racism, and public health hazard. By leveraging computer-based social justice research and multimedia art, the project disseminated data on textile pollution, advanced the field of textile degradation, and expanded social injustice data on global textile disposal systems. Key outcomes include:</p> <ul style="list-style-type: none"> • A peer-reviewed academic journal article in <i>Waste Management</i> • Construction of 4 landfill simulating reactors • Development of the Textile Waste Facts website and social justice learning modules • Exhibition of the sculpture “Aftermath” at the Boston College McMullen Museum of Art, Boston University School of Public Health, the Hans Rowling Center at the University of Washington in Seattle, and Smithsonian ACCelerate Festival • Documentary about the “Aftermath” sculpture • Press coverage; e.g., from Boston University’s School of Public Health • Received SIGECS Type II Grant for the 2022-23 academic year • Planned future grant applications: Environmental Research and Education Foundation Grant, EPA Environmental Education Grant, NSF Signals in the Soil Grant, National Endowment for the Arts Grant, and Spencer Foundation Small Education Grant

External Grants and Proposals

The Schiller Institute was awarded a **\$30,000 grant from the Charles S. & Millicent P. Brown Family Foundation to support our SIGECS program**. The grant will allow the Institute to support additional SIGECS applications in AY23.

The Institute submitted two additional grant proposals. Although they were not funded, the proposals illustrate the types of proposals that Schiller makes possible at BC. The first was an **NSF Engineering Research Center proposal titled, “Innovating Inclusive Infrastructures within Urban Black Communities.”** The project aimed to develop a new paradigm for data-driven engineered systems and designs for inclusive infrastructure innovation, beginning within partnered urban Black

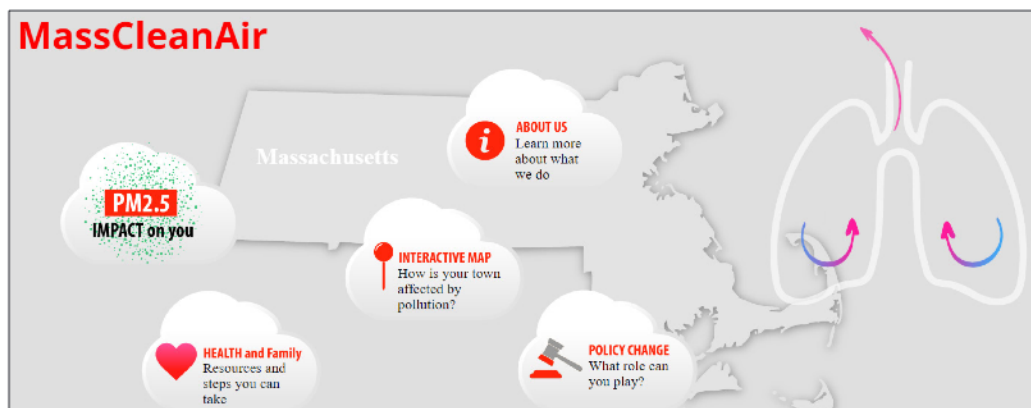
communities across eight testbed sites in the US. The proposal included Dr. Steinberg, as well as three faculty from Engineering, Social Work, and Education.

The second proposal was submitted to the **Benjamin A. Gilman International Scholarship Program**, which is a program of the U.S. Department of State and supported in its implementation by the Institute of International Education (IIE). The proposal was for the **Gilman Climate Leaders Virtual Seminar Series**. The proposal included ten faculty members, representing the Morrissey College of Arts and Sciences, School of Social Work, and Law School, and including many participants in the Multidisciplinary Faculty Research Seminar on Climate Change, a SIGECS grant.

Global Observatory on Planetary Health

The Global Observatory on Planetary Health is a research center within the Schiller Institute under the direction of Dr. Philip J. Landrigan. It was established to track the impacts of pollution, climate change, and biodiversity loss on human health, and to develop science-based solutions for protecting the earth’s environment, preventing disease, saving lives, and advancing social justice. Led by Dr. Landrigan, researchers in the Observatory are currently examining the impacts of pollution and climate change on children’s health, heart disease, cancer, and ocean health; studying the health hazards of plastics across their entire life cycle; and developing options for reform of national and international chemical policy. The Observatory is an interdisciplinary collaboration whose members are drawn from schools and departments across Boston College.

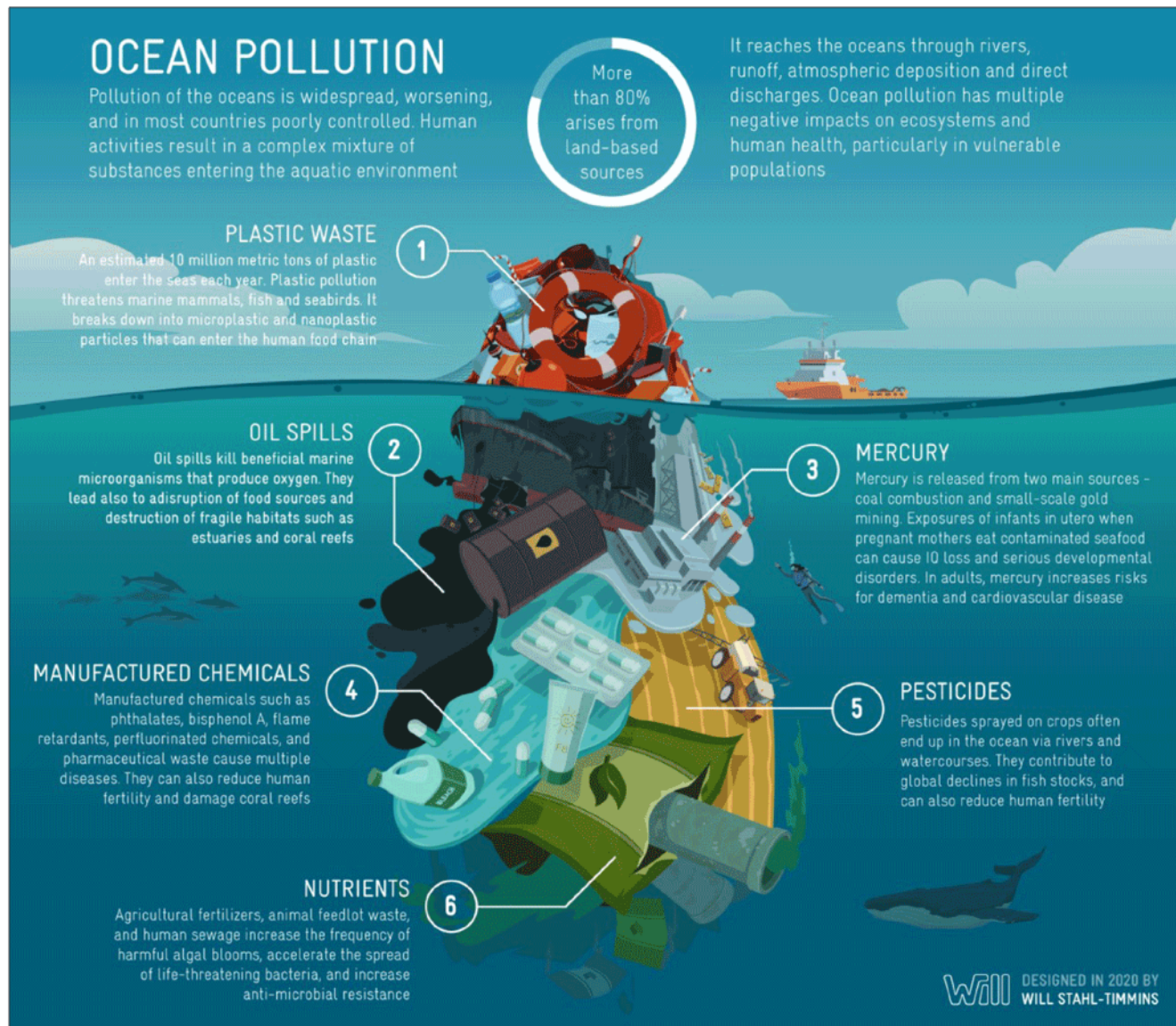
One of the projects that was completed in AY22 was a **study of air pollution in Massachusetts**; funded by the Barr Foundation. To guide statewide and local actions to control air pollution and prevent disease, the Observatory conducted the first ever study of air pollution’s health impacts in each city and town across the state. The study’s results include an interactive air quality map, resources for contacting elected officials, and relevant articles on the MassCleanAir website.



Another completed project, titled **Human Health and Ocean Pollution**, had the following goals: (1) broadly examine the known and potential impacts of ocean pollution on human health; (2) inform policy makers, government leaders, international organizations, civil society, and the global public of these threats; and (3) catalyze interventions to control and prevent pollution of the seas and safeguard human health.

This study was funded by the Prince Albert II of Monaco Foundation.

The infographic below summarizes the findings from the project:



ACADEMIC PROGRAMS

To prepare the next generation of scholars, advocates and leaders, the Schiller Institute's academic programs and courses equip BC students with a disciplinary-spanning intellect and 21st century skills. As of AY22, the Institute's academic offerings included the undergraduate minor in Global Public Health and the Common Good (GPH&CG). The Institute will be rolling out multiple new courses in AY23. Through the expertise of the Institute's Core faculty, affiliated faculty, and talented staff, these foundational learning opportunities will be designed to uniquely prepare students to lead with integrity and dexterity in an increasingly complex world.

The Program for Global Public Health and the Common Good (GPH&CG)

The academic minor in Global Public Health and the Common Good launched in Fall 2019 as a six-course, 18-credit minor. The program is led by Dr. Philip J. Landrigan. Students must apply to the minor, and approximately 50 students are admitted each year. 51 students graduated with a GPH&CG minor in May 2022, including the first two graduates in the Independent GPH&CG Major. One of the graduating seniors, Jenna Mu (pictured below), earned the Finnegan Award for the outstanding graduate in their class at BC.

Entering AY23, there were 110 students enrolled with students from each of BC's four undergraduate schools: Morrissey College of Arts & Sciences (88), Connell School of Nursing (10), Carroll School of Management (6), and Lynch School of Education and Human Development (6). A variety of majors are represented within MCAS, including Biology, Neuroscience, International Studies, and Economics. In addition to the minor, 12 students are pursuing an independent major in GPH&CG, which is a precursor to a planned major in GPH&CG.

The goal of the minor is to introduce students from a wide range of majors, disciplines and schools across Boston College to key concepts in Global Public Health. Program graduates will gain knowledge of:

- The theory, history and key issues in Global Public Health
- Epidemiology, the study of the distribution and determinants of health and disease in populations – the core science of public health
- The social, economic and environmental determinants of health and disease
- The contributions of public health to the stability and well-being of modern societies
- The moral, ethical and legal foundations of Global Public Health

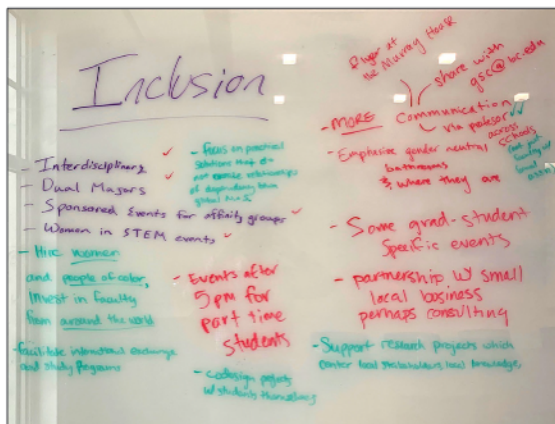


STUDENT ENGAGEMENT

In addition to the GPH&CG program, the Schiller Institute is committed to enriching the college experience of BC's vibrant undergraduate and graduate student populations.

Student Convenings

With the aim of initiating dialogue and gauging how best the Institute can meet student needs, the Schiller Institute hosted a series of student convenings in Spring 2022. In each convening, Institute staff presented information about the Institute's mission and purpose, and shared examples of existing student initiatives. Students were asked to address three prompts: 1) Skills that they would like to develop; 2) How Schiller could support their interests and activities; and 3) How Schiller can be more inclusive and offer a deeper sense of belonging. The Institute is reviewing the findings from the convenings, and will use them to shape future student programs.



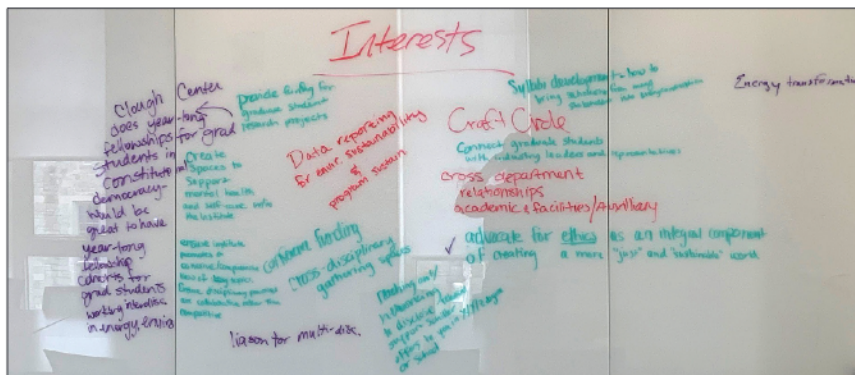
Co-sponsored events

The Institute co-sponsored multiple events organized by and/or for the benefit of students during the year, including:

CARE course final presentations. In partnership with the Thea Bowman AHANA and Intercultural Center, Schiller co-sponsored the Community Advocacy and Research Engagement (CARE) course. The sponsorship included providing funding to the students in the course, to support research expenses. In addition, the final presentations for the course were held in the Schiller Institute Convening Space.

ENVS Spring Research Symposium. The Environmental Studies Program hosted its annual spring research symposium in the Schiller Institute Convening Space. The symposium features a poster session where senior environmental studies majors present their senior theses.

Hack the Heights. Hack The Heights is a Hackathon organized by the Computer Science Society at Boston College. The group's goal was to promote coding for students across campus. We sponsored lunch for the event, and a prize for student submissions related to energy, health, or the environment.



Remembering/Forgetting Pandemics: A Symposium on Pandemic Re-Awakenings. The Institute hosted Oracle: The History Journal of Boston College's spring conference in the Convening Space. Undergraduate students presented short papers engaging with an author or theme in History Professor Guy Beiner's newly published edited volume, *Pandemic Re-Awakenings: The Forgotten and Unforgotten 'Spanish' Flu of 1918-1919*, and graduate student respondents offered comments. At the conclusion of the spring semester, 8-12 page papers based on the presentations made by students were published in a special issue of the journal. The goal of the conference was to attract interdisciplinary submissions that, while focused on the historical narrative of the volume, touched on other themes relevant to the social and natural sciences. Some such themes included: immediate reactions to public health crises; the process of post-pandemic memory formation; and how we re-write the histories of health crises in subsequent decades.



Left to right: History Professor Guy Beiner, Mckayla Yoo MCAS '23, Dennis Wieboldt MCAS '22

“On behalf of Oracle, I just wanted to thank you so much for your support for ‘Remembering/Forgetting Pandemics.’ The conference went fantastically and we’re looking forward to publishing the conference proceedings.”

Dennis Wieboldt, undergraduate history major

Student employees

The Institute employed multiple students during the year.

Zeyad Anwar



Zeyad is an undergraduate student double majoring in Environmental Studies and International Studies. He participated in the GPH&CG summer 2021 internship program. His primary project was understanding the landscape of the environmental justice movement in the Boston area.

Kimberly Black



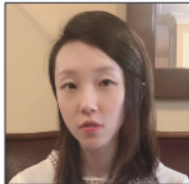
Kimberly is an undergraduate student pursuing a Bachelor of the Arts in Communications and Film Studies. Her primary responsibilities included marketing and communication support for the Institute. She designed the posters for the Climate Change and the Energy Transition Symposia, including the graphic that was sent to the entire campus community, inviting them to attend the series of public lectures.

Grace Dennis



Grace is an undergraduate pursuing a Bachelor of the Arts in History and Journalism. Her primary responsibilities included marketing and communication support for the Institute. She designed multiple event posters for the Institute, including the student convenings, which she helped brand as Chat and Chews, and the Passport to Innovation.

Sarah He



Sarah is a Political Science PhD student. She participated in the Institute for Liberal Arts summer 2021 internship program for PhD students in the humanities and qualitative social sciences. Sarah worked on multiple projects related to benchmarking the operations and structure of other interdisciplinary institutes.

Emily Kulenkamp



Emily is a Political Science PhD student. She participated in the Institute for Liberal Arts summer 2021 internship program for PhD students in the humanities and qualitative social sciences. Emily worked on multiple projects related to benchmarking the operations and structure of other interdisciplinary institutes.

Gabrielle Nash



Gabrielle is a graduate student pursuing a Masters of Social Work. During AY22, she was the Graduate Assistant for Global Public Health and the Common Good. She primarily supported communications efforts for the minor, including the bi-weekly newsletter and creating flyers for events.

EVENTS

The Schiller Institute makes it a priority to host events on campus that bring together faculty, students, and staff around its core topic areas of energy, health, and the environment. In addition, the Institute seeks to become a leader in the study of interdisciplinarity and collaboration science, and hosts events on those topics as well.

Events hosted by the Schiller Institute

Boston College sent its first ever delegation to the UN Climate Change Conference (COP) in November 2021. The Schiller Institute accepted management of Boston College's involvement in future COP meetings in January 2022. As part of that responsibility, the Institute also engaged in multiple outreach activities to engage the campus community. We hosted a **student panel** where the five students who attended COP26 (four undergraduates and one graduate) shared their experiences.

In addition, we hosted **BC@COP: Faculty Perspectives and the UN Climate Change Conferences**. Through brief presentations and a faculty panel discussion, this event framed the climate change discussion through three lenses: climate change policy; health; and social justice. These three lenses align with Boston College's mission and the unique expertise of its faculty. Faculty panelists offered

their thoughts on the successes and challenges of COP26 in Glasgow, Scotland, and previewed COP27 in Sharm el-Sheikh, Egypt. The event was moderated by Tiziana Dearing, Host of Radio Boston, WBUR, and former professor in BC's School of Social Work.

The Institute engaged a 13-member search committee during a faculty search for its inaugural Core faculty members. As part of the on-campus interview process, each faculty candidate was asked to give a public lecture on their area of expertise, accessible to the campus community. The Institute branded the series of lectures as the **Climate Change and the Energy Transition Symposia**. The series featured 10 outstanding scholars, who described their scholarship, the impact that it has and/or will make, and why it is crucial to addressing critical societal issues. Each lecture was followed by a luncheon where audience members could interact with the speakers.



COP26 student panel, moderated by Erik Owens, Director, International Studies Program



MIT Professor Marzyeh Ghassemi

The Schiller Institute was tasked with chairing a multi-disciplinary committee to assess efforts on campus around data science. That committee's work began in Spring 2022 and included putting on an event titled **Using "Healthy" Machine Learning to Enable Equitable Health Outcomes**. The event featured Professor Marzyeh Ghassemi of MIT's Institute for Medical Engineering and Science and BC professors Summer Hawkins (School of Social Work) and Sergio Alvarez (Dept of Computer Science). Dr. Ghassemi spoke about novel technical approaches to machine learning in healthcare and the need for their careful application, followed by a moderated discussion with Drs. Hawkins and Alvarez about the intersection of health, equity, and data science.

In collaboration with the Office of the Vice Provost for Research, the Institute hosted the **Boston College Interdisciplinary Research Buildings Workshop** in June 2021. The virtual conference explored best practices for academic buildings devoted to interdisciplinary research. Motivated by the January 2022 opening of 245 Beacon Street, the workshop brought together university leaders from institutions across the country to discuss the

opportunities and challenges inherent in designing and operating interdisciplinary research buildings.

Participating institutions included Yale University, Georgia Institute of Technology, University of California-Riverside, Michigan State University, Tufts University, Northeastern University, University of California-Irvine, Amherst College, University of Delaware, Boston University. Attendees included people in the positions of Vice President for Research Development and Operations, Vice Provost of Research, Associate Provost for Science Initiatives, Campus Architect & Associate Vice Chancellor, and Building Operations Managers, among others. The Institute's senior research fellow, Kim Nelson Pryor, wrote an emerging best practices document about the findings from the workshop. In addition, she and Dr. Steinberg completed a research project on understanding key issues in higher education interdisciplinary building leadership. Dr. Pryor presented at the annual meeting of the American Education Research Association, and she or Dr. Steinberg will present at additional conferences, including the Association for the Study of Higher Education and the American Institute of Architects. They have also completed a manuscript on the topic.

Co-sponsored events

In addition to events hosted by the Institute, we co-sponsored many exciting events with campus partners throughout the year. These events included:

Ruha Benjamin, *Race After Technology: Abolitionist Tools for the New Jim Code*. Ruha Benjamin is Professor of African American Studies at Princeton University, Founding Director of the Ida B. Wells Just Data Lab, and author of the award-winning book, *Race After Technology: Abolitionist Tools for the New Jim Code*, among many other publications. Her work investigates the social dimensions of science, medicine, and technology, with a focus on the relationship between innovation and inequity, health and justice, knowledge and power. This event was presented by the Park Street Corporation Speaker Series and co-sponsored by the Lowell Humanities Series.

Fish Live in Water. A lecture by John Manderson and Sheila Gallagher (BC Studio Art professor) as part of the “Hosting Earth” Symposia and Conference in April 2022 presented by Guestbook Project.

David Meshoulam, *Trees as Boundary Objects: Growing Boston’s Urban Forest for Equity, Justice, and Resilience*. Part of the “Rewilding Planet Earth Series.” David Meshoulam is the Executive Director of *Speak for the Trees*. *Speak for the Trees*, Boston, exists at the intersection of environmental justice, racial and social equity, public health, and climate change, and works to improve Boston’s urban forest through plantings, education, and advocacy. This event was co-sponsored with the Environmental Studies Program.

Dr. Steinberg moderated the **inaugural Hamilton Symposium on Rare Genetic Diseases**. Named in honor of Annie Hamilton and the CureFA Foundation, the Hamilton Symposium highlights research into rare and understudied genetic diseases, new therapies, and advocacy for individuals living with these disorders.

RAPPAPORT CENTER
FOR LAW AND PUBLIC POLICY

BOSTON COLLEGE | LAW

MOVING TOWARDS EQUITABLE CLEAN ENERGY IN CITIES

THURSDAY, MARCH 17, 2022
12:00 - 1:30 PM EST
HOSTED ONLINE ONLY

This program will address two issues: 1) the various approaches cities, including Boston, are taking or need to take to achieve a renewable power grid; and 2) how to do so equitably to ameliorate the energy burdens placed on the most vulnerable populations.

REGISTER:
bit.ly/rapp-march17

MODERATOR

JEREMY ORR
Director of Litigation & Advocacy Partnerships, Earthjustice; 2022 Rappaport Senior Fellow in Residence

PANELISTS

DIANA HERNÁNDEZ
Associate Professor of Sociomedical Sciences, Columbia University; Visiting Scholar, Russell Sage Foundation

TONY REAMES
Senior Advisor, U.S. Department of Energy, Office of Economic Impact and Diversity

BRAD SWING
Director of Energy Policy and Programs, City of Boston Mayor's Office

CO-SPONSORS

BOSTON COLLEGE
SCHILLER INSTITUTE FOR INTEGRATED SCIENCE AND SOCIETY

BC LAW
ENV. LAW SOCIETY

Moving Towards Equitable Clean Energy in Cities.

This program addressed two issues triggered by the bold and progressive passage of Boston’s Building Emission Reduction and Disclosure Ordinance (BERDO 2.0): 1) the various approaches cities, including Boston, are taking or need to take to achieve a renewable power grid; and 2) how to do so equitably to ameliorate the energy burdens placed on the most vulnerable populations. The event was co-sponsored with the Rappaport Center for Law and Public Policy and Environmental Law Society at BC Law School.

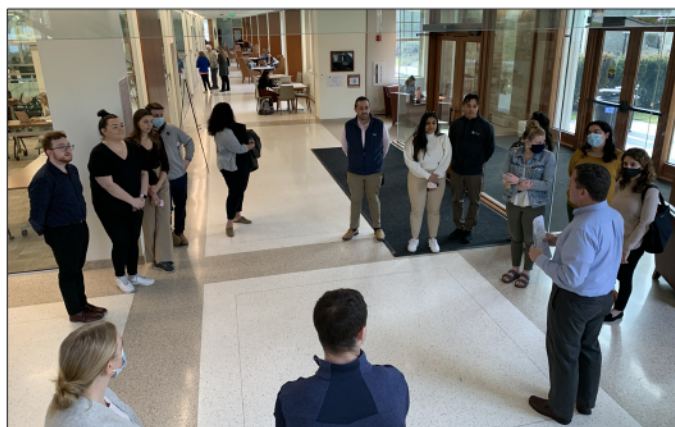
BUILDING COMMUNITY

The Schiller Institute is committed to building community among the departments that inhabit 245 Beacon Street. In addition, the Institute has made a concerted effort to welcome all BC faculty, students, and staff into the building and help them feel like they have a place in the building as well.

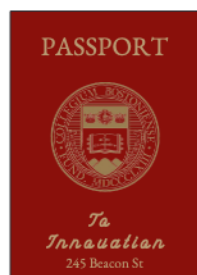
245 Beacon Street Open House and Building Tours

In late January 2022, the Institute, in partnership with the other departments in the building, hosted an **Open House**. All faculty and staff were invited to attend. The event included guided tours, presentations by each department at designated areas around the building, and a reception in the Schiller Institute Convening Space. Over 100 BC community members attended the event.

To accommodate community members who were not able to attend the Open House, the Institute also led **building tours** throughout the Spring 2022 semester. Groups that took a tour included the Office of Student Involvement, the Student Life Board of Trustees Sub-committee, the University Career Center, and the Admission Office.



Passport to Innovation



In an effort to encourage students to explore 245 Beacon Street and to help them feel welcome in the building, the Institute created the **Passport to Innovation** program. Participants “traveled” through the building by completing a task designed by each of the seven departments in the building. For each completed task, they received a stamp and became eligible for a prize at the end of the spring semester.

Activities to Build Community

To further its relationship with the other departments in the building, the Institute organized additional activities to interact in an informal setting. The Institute formed the 245 Beacon’s **Walk Across Campus** team, which is a university-wide wellness initiative to encourage employees to be active. In the lead up to the Ruha Benjamin event mentioned above, the Institute provided copies of her book for building occupants, and hosted a **book club** to generate excitement for her speaking event.

