Climate Futures Initiative

Recommendations

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Executive Summary

Dartmouth—an Ivy League university set in the northern forest of New England—**is uniquely placed to convene, grow, and amplify climate and sustainability as an integrative lens for all campus activities, from teaching and research to facilities, operations and management**. Dartmouth has long-standing strengths in experiential learning, outdoor programming, climate and ecological research, working lands, and connections with communities from the Upper Valley to the Arctic. Building on these strengths, the mission of the Climate Futures Initiative is to provide a framework that supports a future of excellence in climate and sustainability teaching, research, and scholarship across campus.

Three overarching goals emerged through hundreds of discussions and interviews with faculty and staff in the Arts & Sciences, the Thayer School of Engineering, the Geisel School of Medicine, and the Tuck School of Business, as well as Dartmouth alumni and students (as detailed in Section IV of this report, and Appendix A). Each of these goals reaches across schools and divisions to capitalize on the collective strength of the College. To ensure success, each goal requires support in various forms that are described in detail in the full report. Together, these goals align with the Dartmouth mission of educating and preparing students for a lifetime of learning and responsible leadership, while creating new knowledge.

1) **Cultivate Climate Citizens:** Transform the curriculum and the Dartmouth experience to ensure that our students are equipped with the tools and sense of purpose to become resilient and adaptable citizens, as well as climate leaders in their communities.
2) **Transform Campus into a Living Laboratory:** Build on our excellence in experiential learning to leverage our working lands and campus infrastructure to create spaces for climate and sustainability hands-on teaching, research, and scholarship.
3) **Amplify Opportunities for Scholarly Excellence:** Strengthen areas of scholarly excellence that build from our existing academic footprint, align with our history and principles, and help to understand complex challenges, develop solutions, and advance holistic approaches for more equitable climate futures.

One of Dartmouth's greatest strengths is the university-wide breadth of its climate and sustainability endeavors. Every school, department, and program is engaged in climate and sustainability teaching, research, and scholarship. Dartmouth already has the ingredients necessary to catalyze the above-described goals. With the framework provided by the CFI and support from

the administration, Dartmouth will be at the forefront of academic institutions demonstrating how we teach, collaborate, discover, and innovate to prepare our students, address societal problems, and be a role model to our peers and community.

The following sections of this report describe Dartmouth's approach to climate and sustainability (Section I), CFI goals (Section II), suggestions for future staffing and structure for CFI (Section IV), overview of the process that led to these recommendations (Section V), followed by acknowledgements and several supporting appendices.

Priority recommendations are summarized in Section III of this report with additional recommendations listed in Appendix B. The list contained in the text box below reflects top recommendations.

Climate Futures Initiative: Top Recommendations

Establish an annual Climate Futures Conference

Invest in infrastructure to capitalize on Dartmouth's excellence in "working lands" and climate change by building a multi-use facility at the Second College Grant and a 4-season classroom at the Organic Farm.

Develop an undergraduate Climate & Sustainability Modification.

Support "Plus One" climate & sustainability experiential

I. Climate & Sustainability at Dartmouth: Our Guiding Principles

Climate change epitomizes what many scholars have described as a "wicked problem" (even a "super wicked problem").[1] Wicked problems are those marked by societal and political divisions, compounding levels of systemic complexity, and scientific uncertainty. Climate change is also, as Amitav Ghosh eloquently described, resistant to contemporary modes of thinking and imagining the future.[2] For these reasons, climate change is a challenge that requires the full breadth and collaboration of many disciplines and applied fields. Dartmouth, with its liberal arts-focused mission, expertise in experiential learning, outstanding scholars, and rural northern setting, is uniquely poised to provide educational opportunities and create knowledge on climate change and sustainability and furnish a model of civic-minded, action-biased climate education for peer

[1] Lazarus, R. J. 2009. Super wicked problems and climate change: restraining the present to liberate the future. *Cornell Law Review, 94(5)*, 1153-1234.

[2] Ghosh, Amitav. 2017. *The Great Derangement*. Berlin Family Lectures. Chicago, IL: University of Chicago Press.

institutions to follow. Establishing a framework for Dartmouth's future in climate and sustainability will mark a generational and transformative moment in Dartmouth's long history.

There is widespread agreement on campus that the urgency of climate change requires a bold and imaginative response. Faculty feel that we have an obligation to prepare students to be citizens of a very different climate future and to forge a bold path to address the harms and risks of climate change locally and globally. Instead of replicating efforts and organizational structures modeled by our peer institutions (for example, creating new institutes or centers), CFI has spent the past year exploring how Dartmouth can build our approach from the foundations that continue to distinguish the Dartmouth experience and align with President Beilock's priorities and the Board of Trustee's historic commitments to campus decarbonization.

Based upon discussions with faculty, staff, students, and alumni, we articulate four guiding principles for establishing a framework for climate and sustainability teaching, research, and scholarship at Dartmouth.

- Be a model for our students, peers, and neighbors by **transforming our campus into a living lab for climate and sustainability action, teaching, community engagement, and leadership**. Our unique resources, particularly the Second College Grant and the Organic Farm, as well as our commitments to a sustainable campus, should be central to the Dartmouth experience.

- **Lean into our "Sense of Place,"** which means our climate and sustainability efforts should contribute to living and adapting to change in cold regions, build from our outdoor programs and culture, and ensure that we continue our foundational commitment to Native American students and scholarship.

- **Foster innovative regional, national, and international collaborations & experiential learning** by prioritizing institutional structures and programs that catalyze new research and intellectual partnerships, experiential learning opportunities, and the integration of climate and sustainability studies into our foreign studies curriculum.

- **Support creative and curiosity-driven research and scholarship** that generates high-risk, high-reward approaches to climate and sustainability research and scholarship, building on interdisciplinary collaborations across campus.

II. Proposed Goals and Recommendations

If our principles describe our approach (or "how" we do climate and sustainability at Dartmouth), then our goals provide focus for "what" we should be doing. Overall, these goals and specific

recommendations reflect the faculty's shared desire to establish Dartmouth as an intellectual leader for creative, interdisciplinary, and committed climate research, teaching, and scholarship.[3]

This report contains priority recommendations associated with each of these goals. Appendix B offers additional recommendations that should be considered in the future.

Goal 1: *Cultivate Climate Citizens*

Every student, regardless of their course of study, should have the opportunity to learn about climate change's impacts on communities and ecosystems, including understanding that climate change is an uneven and complex set of processes that transforms lives and livelihoods in ways that compound other patterns of vulnerability.

Students provide feedback on CFI outcomes at the Fall '24 CFI Student Forum. Photo by Rob Strong '04.

Our goal is to transform Dartmouth's curriculum to ensure that our students are equipped with the tools and sense of purpose to become resilient and adaptable citizens, as well as climate leaders in their communities. Dartmouth already has the ingredients necessary to meet this goal.

Our greatest strength may be the breadth of our climate and sustainability scholarship and teaching, as described in Appendix D. Nearly every department and program at Dartmouth is engaged in climate and sustainability research, programming, and teaching. Our centers and institutes are prioritizing climate change and sustainability in their programming and planning, while forging interdisciplinary collaborations and cross-campus connections and opportunities. The environmental, political, and social consequences of climate change, including loss and uncertainty, are central to creative practices on campus, including programming at the Hopkins Center for the Performing Arts and the Hood Museum of Art.

[3] The Aspen Institute's *Higher Ed Climate Action Plan* (2024) identified strategies that align with CFI recommendations including that higher education should provide all students with a "foundational level of climate literacy, and an opportunity or deeper learning about climate across disciplines, and an opportunity to understand sustainability throughout workforce development (14)." Other key strategies focused on advancing equity and modelling solutions.

CFI recommendations include an annual "Climate Futures" summer conference to encourage this breadth across campus and engage our scholars with leading colleagues from across the globe, in addition to curricular recommendations to help ensure that every undergraduate, graduate, and professional student is prepared to be a citizen of a different climate future. We recommend working with Guarini, Tuck, Thayer, and Geisel to develop recommendations to address this goal for our graduate and professional students, as well as develop avenues for these schools to contribute to undergraduate climate and sustainability curricular goals.

Goal 2: *Transform the Campus into a Living Laboratory*

Our goal is to transform the campus into a living laboratory for teaching, research, and scholarship. Doing so allows us to fully engage our approach to climate and sustainability, while utilizing some of Dartmouth's most extraordinary resources.[4] CFI recommendations are designed to encourage faculty and student research and teaching on campus lands and infrastructure, while addressing the need to design facilities and programs that support the diversity of our community's abilities and experiences with the outdoors (for example, ensuring that new buildings and programs are accessible and welcoming to everyone).

Exemplifying "campus as lab," (from left) Maple Siu '28, Nori Schneider '28, Liam Kenny '28, and Anneliese Henrich '28, students in the Environmental Earth Sciences class, take carbon dioxide measurements on the lawn of the President's House in November. Photo by Robert Gill.

Dartmouth's approach to campus as lab builds upon our legacy as a leader in outdoor programming and our commitments to wilderness education. For example, the Dartmouth Outing Club (DOC),

[4] Helpful comparisons of campus as lab programs from other institutions, as well as "best practices," can be found https://stars.aashe.org/resources-support/help-center/v2-academics/campus-as-a-living-laboratory/

founded in 1909, is the oldest and largest collegiate outing club in the country. The College's Outdoor Program's Office (OPO) is central to the Dartmouth experience and oversees Dartmouth's rental cabins, the Ledyard Canoe Club, as well as wellness and leadership programs. Nearly 90% of incoming students participate in OPO's First Year Trips, where they are introduced to Dartmouth's remarkable outdoor facilities, such as the Moosilauke Ravine Lodge, the Dartmouth Skiway, the Organic Farm, and the Second College Grant.

"Campus as lab" can be a fulcrum to further our relationships with our neighbors and regional landowners and land managers, including the Town of Hanover, the Hanover Improvement Society (Storrs Pond), the Hanover Conservancy, the Oak Hill Outdoor Center, the Upper Valley Land Trust and the Connecticut River Conservancy. As we learn more about best practices for cold-region energy transitions, we can exchange information with regional municipal governments and the USACE's Cold Regions Research and Engineering Laboratory (CRREL).

At the same time, our approach to campus as lab is also future-oriented—shaped by contemporary priorities, including health, wellness, and sustainability goals. At Dartmouth, campus operations and infrastructure—from our medical facilities to our dining halls—are key sites for teaching, research and creative practices that inform ways to live well and sustainably. President Beilock's ambitious commitments to decarbonize the College's energy systems, including the use of geo-exchange technologies, offers new opportunities to experiment and model approaches to cold region decarbonization for our peers and neighbors, as well as answer basic scientific questions about thermodynamics and local geology. Therefore, transforming the campus into a living laboratory becomes a process where our academic research and teaching integrates and informs campus operations.

Goal 3: *Amplify Opportunities for Academic Excellence*

While we need to continue to nurture and grow Dartmouth's breadth and campus-wide commitments to climate and sustainability research and action, **our goal** is to amplify five thematic areas that represent opportunities for continued excellence.

These five areas, listed on the image below and detailed in the following sections, balance our long-term strength in cold-region research, including New England, with needs to support our curricular goals and the continued integration of our professional schools into our approach to climate and sustainability. CFI used several criteria to identify these opportunities for excellence: a review of our existing strengths, alignment with our history and principles, as well the need to support institutional commitments to newer initiatives and programs.

CFI recommendations are designed to focus and accelerate Dartmouth's academic leadership and teaching in these areas, including supporting high-risk, high-reward approaches to climate and sustainability research and scholarship. **Key recommendations include developing a hiring plan (discussed on pages 14 - 15) to address critical gaps in expertise, teaching needs, and future retirements, and emerging scholarly opportunities, including start-up resources. Pilot**

funding mechanisms must be available to catalyze novel research directions, with a focus on collaborative and interdisciplinary proposals.

Area 1: Forest & Farm Ecosystems

Dartmouth's forest and farm properties are an unparalleled asset compared to our peers. Unlike many comparable experimental forests, we manage our forests as working lands (for timber harvest) while prioritizing sustainability and ecological goals. The College owns thousands of acres of forested land in New Hampshire and Vermont—most significantly the Second College Grant (27,000) in Coos County, New Hampshire. Other forest properties include lands at Mt. Moosilauke (4,500 acres), the Organic Farm (220 acres), the Dartmouth Skiway (104 acres) and the Clement Woodlot (509 acres). Each of these properties offer different opportunities for research and teaching, as well as student engagement, experiential learning, and wellness-focused programming.

George Perkins Marsh, Dartmouth class of 1820, is considered America's first environmentalist. In his book *Man and Nature* (1864), Marsh developed a theory that human alterations of forests and landscapes could change the weather.[5] Since Marsh's time, Dartmouth faculty have been research pioneers in forest ecosystem dynamics, including helping co-found the Hubbard Brook experimental forest, where acid rain was discovered. Currently, Dartmouth faculty are engaged in NSF and other agency-funded research that examines how climate change is impacting rural landscapes and associated economies and livelihoods, including forest dynamics and climate change. Beyond this foundational science, Dartmouth faculty research explores how forests and farms can be used to mitigate the economic and environmental consequences of climate change (such as soil carbon storage, sustainable agricultural systems, and experimental forestry techniques).

[5] Prof. Matt Ayres, a long-time leader in forest ecosystem research, shared the George Perkins Marsh quote.

The view from "Sam's Lookout" in the Second College Grant.
Photo by Beam Lertbunnaphongs '25.

We should build upon our existing partnerships with comparative forest sites, such as the Harvard and Hubbard Brook experimental forests, forest management agencies including the U.S. Fish & Wildlife Service, U.S. Forest Service, and New Hampshire Fish & Game, and universities with shared interest in the future of northern forests, including the University of New Hampshire, University of Maine, and the University of Vermont.

In addition to its forests, Dartmouth's Organic Farm lies along the Connecticut River on 220 acres that include experimental and teaching gardens, forests, and meadow landscapes. The "O-Farm" is close enough to campus for faculty and students research projects and hosts labs and classes throughout the summer and fall terms. At present, use of the O-Farm is over-subscribed and limited by existing facilities, which is why we recommend building a four-season classroom at the site.

Overall, faculty overwhelmingly support centering the Second College Grant in our approach to research and teaching about climate change and sustainability. Building a multi-use resource building at the Grant would support this goal and allow greater access to the Grant by our students, collaborating research institutions, and North Country communities. These infrastructural investments will enable Dartmouth to extend its legacy of excellence in northern forest research to become a leader in comparative research and teaching on "working lands" and climate change (ecosystem dynamics), natural solutions to climate change, and the impacts of climate change on local rural economies and communities.

Area 2: Health, Wellness, and Equity

Faculty from Dartmouth's distinguished Geisel School of Medicine engage in research to understand the role of climate change in patterns of illness and disease, health equity, and access to healthcare delivery, including with some of our most vulnerable populations. Some of this research relates to

increased risk and health outcomes related to escalating rates of fires, storms, and other natural disasters.

Geisel Professor of Epidemiology Margaret Karagas and Earth Sciences Professor Brian Jackson collaborate on arsenic study. Photo by Eli Burakian '00.

Our medical school faculty are also developing vaccines and other interventions that address emergent diseases and patterns of illness associated with climate change (such as malaria, Lyme disease, and asthma rates among children), nutrition, and food systems. Geisel's MD curriculum includes planetary health requirements. A major focus for the Irving Institute for Energy and Society is research at the intersection of energy systems and health outcomes, while Geisel faculty have established the Alliance on Climate and Health to support research and teaching priorities.

Among Dartmouth faculty, there is enormous interest in establishing a focus on climate change, health, wellness, and disease, including the impacts of climate change on mental health. In addition to being a top-ranked medical school, Geisel is a medical school with wilderness in its backyard, and Dartmouth-Hitchcock Medical Center staff largely treat patients from rural New England who are already grappling with the impacts of climate change. This context, coupled with our expertise in health policy (for example at The Dartmouth Institute), health inequalities and health economics, as well as foundational medical research, are the elements that we could leverage to make significant advances in climate change and health, wellness, and equity. Effective communication strategies are crucial to increase awareness of climate-related health issues, including environmental and insect-borne illnesses, and to empower individuals and communities to act. CFI recommends convening health faculty from across the campus to identify research and teaching priorities that align with external funding opportunities. Novel and innovative approaches should be supported through a pilot funding initiative.

Area 3: Cold Regions & the Changing Arctic

Dartmouth has long been engaged in cold region scholarship, creative practices, and teaching, including in the Arctic, with its institutional identity and related academic commitments also shaped by its association with the rural New England landscape. The Institute of Arctic Studies (IAS) at the Dickey Center, founded in 1989, has supported multidisciplinary Arctic scholarship and

global policy dialogs. Central to IAS has been an approach that values inclusion, equity, and Indigenous Knowledge in solutions to Arctic and global challenges – a commitment that sets IAS apart from other similar efforts and accounts for its ongoing leadership in Arctic studies and policy.

Other institutional connections include Dartmouth's leadership in the establishment and governance of the University of the Arctic and long-term collaborations with the federal Cold Regions Research and Engineering Laboratory (CRREL) in Hanover. Dartmouth's libraries and collections at the Hood Museum include a range of world-renowned photographic, manuscript, and archaeological collections.

Dartmouth researchers joined an international team of scientists for nearly a year on a research vessel in the Arctic ice to study sea ice melt and climate change. Photo by Stefan Hendricks.

The Provost's cluster hiring initiative on "changing polar regions" helped integrate Dartmouth's polar-region focus across Arts and Sciences and the Thayer School of Engineering. Research includes climate and cryospheric sciences, with faculty seeking to understand the role of ice sheets in a changing climate and provide reliable projections of sea level rise. Other key research areas include health equity, Arctic ecologies, and energy transitions in cold regions. While our Arctic and cold-regions focus distinguishes us from our peers, there are some areas we should consider for targeted hires to fill existing gaps in our expertise (particularly in terms of Arctic northern communities and climate change) as well as emerging gaps due to upcoming retirements.

Area 4: Accelerating the Energy Transition

Faculty throughout campus are engaged in research and teaching related to energy, energy justice, and the energy transition, including the new Master in Energy Transition graduate program. Much of the research on the energy transition has emerged through collaborations among faculty associated with the Irving Institute for Energy & Society, Tuck Business School, and Thayer School of Engineering.

This research includes innovations in technologies, analyses of firms and financial instruments, identification of effective messaging, as well as community-engaged energy transition collaborations both here and in other parts of the world. Tuck's Revers Center for Energy, Sustainability and Innovation works to inspire and shape tomorrow's leaders in energy and engage today's energy community.

Other examples include collaborations between the Dickey Center, Tuck, and Thayer, with a focus on accelerating the energy transition of UN peacekeeping missions. Faculty in the Thayer School of Engineering conduct research, teaching, and community-building efforts in these fields, including the Sustainable Transitions Lab, which focuses on equity-centered sustainability solutions. Thayer supports an Energy Engineering Program Area that supports teaching, service, and research in this area.

A geo-exchange test well is drilled on Dartmouth's athletic fields. Several CFI grants were awarded to support faculty campus as lab research on the bore fields planned for 2025. Photo credits: Chris Johnson.

Dartmouth's academic focus on accelerating the energy transition mirrors our own institutional commitment to achieve carbon neutrality by 2050 in our campus operations. There are considerable opportunities for research, teaching, and experiential learning, as well as community engagement, with Dartmouth's decarbonization efforts. These include conducting primary research associated with the geo-exchange system and related campus operations, using faculty and staff expertise and research to help guide Dartmouth's energy transition plan, integrating related topics into existing courses, developing new courses (possibly interdisciplinary courses), and using Dartmouth's campus as a lab. Both supporting campus-as-lab research and teaching initiatives, as well as targeted hires to better integrate our focus on the energy transition with Dartmouth's foundational expertise in policy, economics, and government, are recommended.

Area 5: The Environmental Humanities & the Eco-Arts

The environmental humanities and eco-arts represent the largest contingent of faculty engaged in climate and sustainability scholarship, creative practices, and teaching at Dartmouth. These are thriving fields that seek to resituate humanistic questions and approaches at the center of scientific

work on the major environmental problems of our age: climate change, pollution, clean water and other primary resources depletion, extinction events, and the degradation of Indigenous lands.

Several centers, programs, departments, and institutes support the environmental humanities and eco-arts at Dartmouth, including the Leslie Center for the Humanities, the Institute for Black Culture and Intellectual Life, the Hopkins Center for the Performing Arts, and the Hood Museum of Art.

"You Look Like a Fun Guy," a Hop-commissioned dance piece, explored relations between humans and the natural world. Photo by Whitney Browne.

Dartmouth's notable expertise in the environmental humanities and eco-arts is significant to our goals of cultivating climate citizens, as these fields offer the frameworks and tools for our students to think critically about climate change's uneven and political processes, as well as the creative practices that allow audiences to "feel the world" as well as "think the world." Supporting the environmental humanities and eco-arts, including their integration into our curricular and research goals, should be the cornerstone of our approach to climate and sustainability at Dartmouth.

III. CFI Priority Recommendations

Other priority recommendations are summarized below with additional recommendations listed in Appendix B. A discussion of staffing needs follows in Section IX of this report.

> To showcase Dartmouth's approach and commitments to climate and sustainability, Dartmouth should establish a summer **Climate Futures Annual Conference** that puts Dartmouth on the map as the place for creative, interdisciplinary, and innovative approaches to climate scholarship and climate change solutions. Inspired by the Gordon Research Conferences (established at Johns Hopkins in the 1930s), Dartmouth's annual conference would become a site for faculty, staff, students, and invited scholars to converge on a theme at the intersection of climate and society. Conference themes would enable interdisciplinary engagement and provide focus for year-long programming on campus and coordination with Dartmouth institutes, centers, programs, including the Hop and the Hood. The annual conference would be anchored by a seminar given by an invited and high-profile keynote speaker. Conference themes could include topics such as:
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> A Year of Ice and Snow (tie into Skiway)
> The Future of Forests
> Energy Justice and Energy Transitions
> Health, Wellness, and Climate Change

The following recommendations support the CFI goal of cultivating climate citizens:

1) Develop an undergraduate climate and sustainability four-course "modification" that any department could adopt. The modification could have "cluster" areas, such as climate change science or the environmental humanities, and would be anchored by a co-taught "climate dialogues" seminar.
2) Support "Plus One" climate and sustainability courses.[6] These Plus One courses could include international travel (such as an interim trip to learn about climate change and sustainable food systems in Rome) or two-week trip to the Second College Grant where, for example, students could learn about stream ecology or engage in "writing in nature."
3) Work with the Committee on Instruction and other faculty committees to develop a "climate and sustainability" distributive requirement to ensure all Dartmouth students have a foundational level of climate literacy.
4) Work with Thayer, Tuck, and Geisel to develop mechanisms for cultivating climate citizens in their programs, as well as ways for our professional schools to contribute to meeting this goal for our undergraduate students.
5) Explore a "climate leadership" graduate degree or certificate program. This degree program could take different forms – either as an interdisciplinary stand-alone program that spans departments, programs, and expertise from relevant centers and institutes (such as Rocky, Dickey, Irving), or as a fellowship-type program in which graduate students in existing programs could receive focused training and experience (like the Innovation PhD Program).

[6] John Tansey suggested that we provide pilot support to develop two to three Plus One courses and that they be funded for three to five years. Domestic Plus One courses might facilitate student exchanges with students who are enrolled in semester-length university systems.

6) Inaugurate a student "climate and sustainability" research fund that could be used to support student-directed research projects, conference or meeting travel, or community-engaged projects.
7) Enhance climate and sustainability focused internships and professional development opportunities in career advising (such as through the Dartmouth Center for Professional Development) and alumni networking opportunities.[7]

The following recommendations support the CFI goal of transforming the campus into a living laboratory:

1) Fund a "campus as lab" research and teaching initiative to support faculty, staff, and student research and collaborations.[8]
2) Reconceive of the Second College Grant as the "Dartmouth Campus at the Second College Grant." Build a multi-use resource building on site for teaching, retreats, research, and local community uses (see Appendix C for conceptual plan).[9]
3) To enhance use of the Organic Farm, build a 4-season classroom that would include plant growing space at the site.[10] The building would support teaching, research, and community engagement.
4) To enhance awareness and highlight the centrality of Dartmouth's sustainability efforts, we recommend building an architecturally significant heat pump plant with a demonstration room that would showcase (behind glass) the geo-exchange infrastructure so our community and visitors can view our campus energy transition in action. This room could host classes, admissions sessions, and other events.
5) Establish a faculty advisory committee to evaluate and coordinate faculty research requests. The faculty advisory committee would develop guidelines for faculty research on campus and a review process to ensure there are no conflicts (logistical and other) with research requests.
6) Seek support (philanthropic and external research funding) to establish permanent instrumentation at the Organic Farm, Moosilauke, and the Dartmouth Campus at the Second College Grant. This instrumentation would collect basic climate data (temperature, wind direction, speed, relative humidity), soil temperature, as well as eddy covariance towers (to analyze CO2 fluxes). This instrumentation would build upon Dartmouth's weather archive and station, one of the oldest in the nation. We should work with the DALI lab to develop a data interface that is engaging and allows scholars to access real-time data. This instrumentation

[7] The CFI Student Advisory Council, chaired by Ben Stevenson '27, and a survey of undergraduate students, expressed strong support for Plus One Winterim courses (strongest level of support), funding for student climate and sustainability research, and professional development opportunities. Students also preferred a modified climate and sustainability major rather than a stand-alone climate and sustainability major or minor.

[8] This year we received 26 proposals for "campus as lab" pilot research projects, totaling over $750,000 in requested funds. We anticipate this program will only grow in popularity, particularly if there is support for teaching or course enhancements that include using the campus as lab.

[9] There is widespread support for building a resource center at the Grant, including from the house communities, arts and humanities faculty and leadership, as well as federal and state partners interested in expanding research at the Grant. The Class of 1967 would like to support this building with their class gift.

[10] In 2024, over 200 students visited the Organic Farm in the context of a class, although the Farm is only viable for teaching during the Fall and (weather permitting) Summer terms. In addition to course-related farm visits, the Farm hosted approximately 1,200 people for events and partners with several community organizations including Willing Hands, Moms in Recovery, Vermont Center for Ecostudies, and the Hanover Conservancy.

would also allow for the collection of long-term data to help us understand climate dynamics and change on working lands in cold regions (farm and forests). We should work with the Dartmouth Libraries Research Data Services team to establish a data-set curation and sharing practices and to ensure their long-term preservation.

The following recommendations support the CFI goal of amplifying opportunities for research excellence:

1) Develop a hiring plan to catalyze new research opportunities in these key areas, also in collaboration with regional and national partners. During the CFI planning process, several gaps were identified that should be addressed by additional staffing to ensure that we meet our goals for scholarly excellence, though more detail is needed to identify appropriate disciplines, departments, and priorities.
   a) Hiring faculty whose research and teaching focus on energy policy, climate policy, energy finance, and energy economics would support Irving's focus on accelerating the energy transition. Though Economics and Government are two of Dartmouth's most popular majors, there is little coursework available to students interested in climate and sustainability. This hiring focus is supported by Tuck faculty, who articulated this hiring emphasis as a top priority, and by leadership in the Rockefeller Center for Public Policy, where there is interest in deepening Rocky's environmental and climate policy focus.
   b) During the "Cold Regions & Arctic" CFI colloquium, the strongest recommendation focused on bolstering interdisciplinary expertise in the Arctic. Because of projected retirements, Dartmouth should consider hiring an Arctic ecosystem scientist (which will be needed to support the NSF Joint Science & Education Program [JSEP] in Greenland). While Arctic and cold regions are a major area of excellence, our current faculty primarily represent the biophysical sciences and engineering. For greatest impact, and to integrate our focus on cold regions and the Arctic across campus, we suggest hiring a social scientist or humanities scholar, particularly someone who works in Arctic Indigenous environmental issues as well as an Arctic international relations scholar.
   c) The Provost's Office should evaluate upcoming retirements in Ecology & Evolutionary Biology (EEB) and identify hires to support our focus on forests, forest dynamics and climate change. There is a need for faculty teaching and scholarship that examines animal ecology (extinctions, migration, etc.) in the context of climate change in cold regions. We might explore opportunities to fund an endowed professorship in Animal Ecology.
   d) Because climate and sustainability concerns are so central to the interests of attendees at Dartmouth's new Tribal Leadership Academy, as well as Dartmouth's overall approach to climate and sustainability, potential hires should support teaching and scholarly priorities in the Department of Native and Indigenous Studies (NAIS). For example, hiring an Arctic Indigenous studies scholar.
2) Identify "climate and sustainability" space for conversations, meetings, campus-as-lab staff, and hosting visiting scholars (possibly as part of a Fairchild renovation).
3) Initiate a "climate and sustainability" postdoctoral research cohort (perhaps as part of the Society of Fellows program) with cohort participants representing focused yet interdisciplinary fields. As examples, cohorts could include topics like "climate and health,"

"cold regions adaptations," "climate humanities," or "natural solutions to climate change." The postdoctoral program could also strengthen Dartmouth's ties to CRREL, US Fish and Wildlife Service, or other institutional partners.

4) Support additional planning to identify health, wellness and climate change priorities among Geisel, The Dartmouth Institute for Health Policy and Clinical Practice (TDI), and other health-related research interests on campus. Currently, much of the support and organizing around "health and climate" has been funded by the Irving Institute for Energy and Society. While Irving should foster and support health and disease research that relates to energy (in the broadest sense), other health and wellness topics are outside of Irving's core mission. As Irving's strategic planning effort articulated, it is in Irving's best interest to have a clear focus on the energy transition to achieve their goals. Therefore, non-energy related health and wellness research should be supported through other initiatives, centers, programs, and institutes, including CFI. Additional planning and priority setting will also facilitate Geisel faculty's cross-campus research and teaching goals, including preparing for competitive research grants such as NIH's Centers of Biomedical Research Excellence (COBRE) Award.
5) Build upon our existing partnerships with comparative forest sites, such as the Harvard and Hubbard Brook experimental forests, forest management agencies including the U.S. Fish & Wildlife Service, U.S. Forest Service, and New Hampshire Fish and Game, and universities with shared interest in the future of northern forests, including the University of New Hampshire, University of Maine, and the University of Vermont.

IV. CFI Organization and Staffing Recommendations

There is very little interest in establishing a new institute or center for climate and sustainability at Dartmouth. Indeed, environmental concerns are already central to the mandates and programming of Dartmouth's most well-established and respected centers and institutes. We should encourage this diffusion and breadth to ensure that climate change and sustainability are integrated into the full experience of campus life, as well as the other pillars of President Beilock's vision, including and especially mental health.[11]

Doing so requires an institutional approach that resists academic silos. Instead, we recommend a staffing approach that helps Dartmouth become a "convener" of cross-campus conversations and collaborations that generate creative, intellectual, and solutions-focused approaches to climate and sustainability.

> To meet our goals, we need to adequately staff the ongoing Climate Futures Initiative. We suggest appointing a Vice Provost for Climate and Sustainability, elevating the Director of Sustainability's position, hiring a CFI program assistant (shared position between VP of Climate and Sustainability and the Director of Sustainability), a campus-as-lab coordinator, campus-as-

[11] A recent study on climate anxiety published in The Lancet found that 75 percent of young adults (ages 16 to 25) said "the future is frightening" and 83 percent of these respondents thought "people have failed to take care of the planet." The study had a sample size of 10,000 and included respondents from ten countries, including the U.S.

Details about these recommended staff positions follow:

Vice Provost for Climate & Sustainability.[12] Responsibilities for this position would include:

- Convening faculty for campus-wide research initiatives (such as EPSCOR, NSF projects, federal research partnerships, cross-university partnerships, NIH proposals, etc.)
- Administering campus-as-lab research funds and teaching support
- Coordinating the annual Climate Futures Conference and associated programming
- Chairing the Campus as Lab Research Advisory Committee
- Co-Chairing the Climate Collaborative Advisory Council
- Supporting climate and sustainability initiatives in partnership with Advancement and Alumni Affairs
- Representing the college's interests to the public, external partners, institutions, and peers, including research partners, international collaborators, government, and non-governmental organizations.

To ensure that CFI recommendations remain integrated into the breadth of campus activities, the Vice Provost for Climate & Sustainability should develop durable governance structures that creat cross-campus engagement, build community, and ensure accountability around goals (both academic and related to campus operations). These governance structures include faculty advisory boards related to curricular goals and for research, as well as external advisory bodies that help with networking, fund raising, and visibility (such as the Climate Collaborative Advisory Council).

The Vice Provost for Climate and Sustainability will need program and administrative support.

We should evaluate the position of the **Director of Sustainability** to address expanded staffing needs related to campus as lab, increased demands for community engagement related to campus decarbonization efforts (with neighbors, alumni, etc.), and co-chairmanship of Dartmouth's Climate Collaborative advisory council. The duties of this elevated sustainability role include:

- Overseeing campus-as-lab operations, including oversight of new staff (a campus-as-lab program coordinator and campus-as-lab technicians, see below for descriptions)
- Overseeing climate and sustainability immersion and experiential learning activities, including working with faculty to develop Plus One courses and working with the Guarini Institute to implement these courses.
- Representing Dartmouth's sustainability and climate goals and actions to the public
- Leveraging campus-as-lab projects for Dartmouth's climate and sustainability operations goals
- Overseeing student internships on campus, focused on climate and sustainability transition

[12] Peer institutions, particularly larger universities, have responded to the climate crisis by establishing new schools (for example Columbia's Climate School) or restructuring existing schools (for example Yale). Other peer institutions have established new organizational structures to oversee cross-campus coordination and collaboration among existing programs, centers and initiatives. In these instances, they have hired a Vice Provost to oversee these programs. As examples, Harvard, Michigan, Yale, Duke, and Penn have established Vice Provost positions to oversee their institution's academic mission related to climate change & sustainability.

- Overseeing management and activities at the Organic Farm

Director of Forest Research. The director of forest research would work closely with the campus as lab coordinator (below) to develop an internal peer review process to evaluate research and teaching proposals related to campus forest lands (including the Second College Grant) and establish protocols for research on campus forested lands. The director of forest research would provide coordinating oversight to ensure that investigators follow research protocols and that there are no conflicts among project goals, land use, implementation strategies, etc.

Campus-as-Lab Coordinator. This position includes keeping an archive of material for classes for farm, forest, and decarbonization efforts, among other uses. Provide support for the Campus-as-Lab Faculty Advisory Committee. Help faculty incorporate experiential learning into their curriculum and teaching practices. Manage research applications and protocols at campus as lab sites. Coordinate with campus operations staff and project managers to enable faculty research and teaching aligned with our decarbonization efforts.

Campus-as-Lab technicians. Funding to support two part-time, content-area experts with technical and operational skills and expertise to support data gathering for scholarship and teaching.

- Support on the ground, technical implementation of campus-as-lab projects
- Provide technical and operational support onsite to support campus-as-lab activities
- Serve as a liaison between researchers and operational teams when necessary
- Clean and process data, supports the collection of usable samples, provides guidance to operational staff on processes that support good data collection

Examples include providing specs to the drill rig teams and overseeing drilling to ensure appropriate installation of research equipment in operational boreholes in geo-exchange bore fields. This equipment can then gather data for multiple PIs, much like a weather station.

Research Data Curation Specialist. A staff member on the Dartmouth Libraries Research Data Services team who can focus on the curation of climate research data for access and long-term preservation. The person in this role would manage Dartmouth's local climate research data and related repositories and work with research teams to appropriately curate and apply metadata to their shareable data sets. The person in this role would also consult on research data management plans and would partner with the ITC Research Computing team to steward active data sets out of computing infrastructure into sharing and preservation repositories.

V. Overview of CFI Process

On April 22, 2024, President Beilock announced the launch of the Dartmouth Climate Collaborative, a renewed commitment to meaningfully address climate change and sustainability at Dartmouth and beyond. The Dartmouth Climate Collaborative includes those working to implement significant

changes to the campus's infrastructure over the next five years, including investing over $500 million in capital improvements to accelerate our campus decarbonization efforts and meet new carbon goals to reduce emissions on campus 60% by 2030 and 100% by 2050. The Climate Collaborative also provides a platform for the university's academic units to work together to accelerate our current scholarship and teaching to address the profound challenges of climate change.

CFI, supported by the Provost's Office, has been a one-year strategic planning process to develop a plan of action for Dartmouth's teaching and scholarship on climate change and sustainability. Much of the work of CFI builds upon prior faculty organizing by an ad hoc group, the Climate Solutions Working Group (CSWG). As the CSWG found, there is enormous campus support for institutional leadership at Dartmouth to address the challenges of climate change as well as to transform Dartmouth into a model for climate and sustainability solutions, scholarship, and engagement. Organizationally, CFI represents the Climate Collaborative's academic mission, with research and scholarship that uses campus infrastructure (such as the Organic Farm, Dartmouth's forested lands, or campus decarbonization efforts) as sites where campus operations and our academic mission are integrated.

During a CFI fieldtrip to the Second College Grant, Mary Lou Aleskie, Ansley Booker and Josh Keniston examine specimens extracted from the Dead Diamond River by the DOC's Flora and Fauna Club. Photo by Beam Lertbunnaphongs '25.

We began CFI with the following questions:

1) What institutional arrangements are needed to best integrate climate scholarship across our schools, centers, and institutes and respond to research funding opportunities?
2) How do we transform our curriculum to prepare students for the challenge of climate change (as citizens, employees, innovators, and leaders)?
3) How can we better utilize our campus infrastructure as sites for scholarship and teaching on climate and sustainability ("campus as lab")?

To understand Dartmouth's academic aspirations and ambitions toward climate change and sustainability teaching, research, and scholarship, we developed a process of facilitated and

informal discussions to engage Dartmouth faculty, students, staff, and alumni. Hundreds of faculty members and staff participated in this process (Appendix A), including senior leadership, directors and staff from Dartmouth's centers and institutes, as well as staff who work closely with student life, campus operations, and alumni affairs.

CFI also included six three-hour colloquia designed to address specific questions we hoped to address in the planning process.

- How can campus decarbonization efforts benefit Dartmouth's academic mission?
- How can Dartmouth's Organic Farm and Dartmouth's forested lands contribute to climate and sustainability teaching and scholarship?
- How can we amplify and learn from our long-term relationships with Arctic communities (and other cold-climate research partnerships) to address the challenges of climate change?
- What goals and related recommendations are necessary to transform our curriculum?
- What are our scholarship goals and what is needed to support these priorities?

Participants in these colloquia represented an interdisciplinary range of scholars, with 15-25 faculty attending each meeting. In addition to these focused colloquia, CFI facilitated discussions with groups of faculty at Thayer, Geisel, Tuck, as well as groups of faculty representing the environmental humanities, the departments of Environmental Studies, Native American and Indigenous Studies, and the Ecology, Evolution, Environment & Society Graduate Program. CFI convened a Student Advisory Council to provide formal input into CFI recommendations, as well as hosted discussions with other alumni and student organizations. Last, CFI conducted a survey with Dartmouth students to evaluate their priorities (see Appendix E for a summary).

The Dartmouth Climate Collaborative Advisory Council also provided direction for CFI recommendations. External experts from peer universities (University of Michigan and Tufts) offered their perspective at the Council's quarterly meeting in the fall, and two additional peer experts (Harvard and Yale) will conduct a thorough review of these recommendations at the Council's winter meeting.

VI. Acknowledgements and List of Appendices

These recommendations benefited from the vision and leadership of President Sian Beilock and Provost Dave Kotz. Barbara Will, Vice Provost of Academic Affairs, Dean Madden, Vice Provost of Research, and Josh Keniston, Vice President of Capital Planning & Campus Operations, provided enormous support and guidance throughout the CFI planning process.

The Climate Futures Initiative has been led by Laura Ogden, Special Advisor to the Provost on Climate and Sustainability, and Rachel Kent '21 from the Sustainability Office. Rosi Kerr '97, Director of Sustainability, led the integration of campus operations, student experiential learning, and campus sustainability efforts into CFI's process. Ellen Meyer Shorb '79, President of Blue Sage Partners, developed the planning process and provided facilitation services at several key meetings.

Ben Stevenson ‘27 served as the CFI student intern and led the student engagement process including chairing the CFI student advisory council, consisting of Bailey Nez ‘26, Abby Burgess ‘25, Kate Yeo ‘25, Andrew Shi ‘26, Rachel Kahng ‘25, Joseph Savage, GR, and Shannon King ‘27. We wish to thank Matt Ayres, Amber Barnato, Melody Burkins, Sarah Crockett, Carolyn Dever, Bruce Duthu, Meredith Kelly, Justin Mankin, Theresa Ong, and Ross Virginia for their leadership roles in CFI.

We also acknowledge the support of Tim McNamara, Associate Director of Campus Operations and Facilities, and Kevin Evans, Director of Woodlands Operations, who led the effort to integrate Dartmouth’s forests, particularly the Second College Grant, into the CFI approach and recommendations. Charlotte Bacon, Assistant Vice Provost for Research Development and Alliances, helped ensure that CFI included representation from across the campus and led the efforts to incorporate external funding opportunities into the recommendations. Katherine Norton, Senior Executive Director, Development and Academic Coordination, served as liaison to the Advancement Division and advised on philanthropic opportunities to support CFI recommendations. We also thank Cheryl Bascomb, Vice President for Alumni Relations, who advised on alumni perspectives, including ways to ensure that Dartmouth’s climate and sustainability goals included increased participation by diverse communities on campus.

This process depended upon the careful engagement of hundreds of participants (see Appendix A) and builds from foundations laid by the Climate Solutions Working Group and participants in Dartmouth’s Our Green Future initiative and report.

List of Appendices (in separate file)

A. CFI Contributors
B. Additional Recommendations
C. Dartmouth Campus at the Second College Grant Conceptual Programmatic Description
D. Overview of Dartmouth’s Climate & Sustainability Breadth
E. Student Survey Summary

Appendix A

CFI Contributors

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Jonathan Zinman	Economics

In addition, CFI held several group discussions with faculty and graduate students in the Ecology, Evolution, Environment & Society graduate program, faculty and students in Native American and Indigenous Studies, Environmental Studies faculty, Dartmouth's Advancement Staff during Q Week, the Dartmouth Climate Alliance alumni interest group, student-government supported information sessions, alumni meetings during reunions, and meetings of the Second College Grant Management Committee.

Appendix B

Additional Recommendations

Cultivate Climate Citizens	
Recommendations	**Notes**
Climate & Sustainability Distributive	Explore a "climate and sustainability" distributive requirement (or "planetary health" distributive). In 2024, both Arizona State University and UC San Diego implemented this requirement.
Climate & Sustainability Graduate Short Courses	In conjunction with the annual Climate & Society Annual Conference and Seminar, Dartmouth could host a graduate student two-week summer school on a theme that aligns with the conference. Led by Dartmouth faculty, these two-week mini courses would provide an opportunity for current Dartmouth graduate students to engage with graduate students from other institutions and build graduate student connections to Dartmouth.
Fossil Fuel Review Committee	Dartmouth should establish a committee to discuss possible guidelines for fossil fuel industry relationships on campus, including research sponsorship, advisory roles, career recruitment, and financial investments. Dartmouth might draw upon examples of similar efforts at peer institutions like Stanford University and Columbia University, who have recently completed this process.
Cold Regions FSP	Explore a cold regions FSP or winterim +1 course, for example in Greenland, the Canadian Rockies, Himalaya, Patagonia, or the Second College Grant.

Transform the Campus into a Living Laboratory	
Recommendations	**Notes**
Dartmouth & US Fish & Wildlife Service MOU	The US Fish & Wildlife Service is interested in pursuing an MOU with Dartmouth. This would expand research opportunities beyond the Second College Grant to include the lands and ecosystems in the Umbagog National Refuge (adjacent to the Grant).
Prioritize inclusivity and accessibility in campus as lab planning	● Consult with inclusivity and diversity specialists to ensure that our campus as lab programs and facilities are accessible and equitable. ● Host a retreat for BIPOC faculty and Dartmouth NEXT program staff at Moosilauke to discuss DEI recommendations and pathways to incorporate campus as lab programs and infrastructure into teaching and research. ● Work with Outdoor Programs to develop "mini courses" for faculty to learn basic forest and outdoor skills, including special attention to faculty and staff who have been historically underrepresented in wilderness activities.
Build a Research Greenhouse at the Organic Farm	A greenhouse would support in-ground and out-of-ground biology and environmental studies research.
Green Farmhouse	The current farmhouse at the Organic Farm could be renovated to house visiting climate & sustainability faculty, artists, writers, etc. Prioritize a net-zero retrofit.
Purchase Energy Efficient Vans	Across the board, more transportation options are needed to enable campus as lab and other experiential learning opportunities on Dartmouth's campus lands.
Reciprocal "Artists in Residence" Program	Develop an artists in residence program where visiting artists provide workshops for free to local communities, facilitating reciprocal exchanges of knowledge. (Examples from Sardinia and other remote areas have been successful). Artists could be hosted at the Grant, Moosilauke, or the Farm.
Increase awareness about the Second College Grant	● Use winterim and other breaks to run programs for both credit-earning and non-credit earning experiential learning

	opportunities at the Grant. ● Consider hosting a monthly bus trip to the Grant, targeting different campus communities. ● Work closely with the Office of Communications to build storytelling about the Grant and other forested properties as a way of bringing these lands to campus.
Document and Communicate Campus Decarbonization Efforts	● Work with Rauner to document and archive Dartmouth's energy transition for the future. This could also be part of a "documenting decarb" course or research project. ● Provide decarbonization updates at meetings (such as Arts & Sciences faculty meetings). ● Create metered energy dashboards on a publicly available website so that people (e.g., students, members of the public) can monitor and analyze energy consumption patterns.
Expand "campus as lab" to include the Connecticut River	Install a dock at the Farm so it is linked to the Ledyard Canoe Club via the Connecticut River. In addition to recreational benefits, this linkage would support attention to the river as a research site on topics ranging from changing hydrology to hydroelectric energy.

Amplify Opportunities for Excellence	
Support Collaborative Teaching	Provide the opportunity, support, and incentive for faculty to develop and teach "special topics" courses, or multidisciplinary courses that focus on decarbonization, renewable energy, transitioning energy systems, and related topics. This may include providing faculty time for course development and encouraging/incentivizing faculty to collaborate across departments and divisions. The dedicated "campus as lab" staff member could assist with course development.
Invest in the Arctic	Support current strategic investments in faculty affiliations and structural positions by the Institute of Arctic Studies that align with, and support, CFI institutional goals to further develop and amplify Dartmouth's distinction in Arctic and Cold Regions; early focus would be on partnerships for the expansion and acceleration of research, education, and policy studies of northern climates, governance, sustainable transitions, and the ethical engagement of communities and Indigenous Peoples.

Appendix C

Dartmouth Campus at the Second College Grant
Conceptual Programmatic Description (last revised 10.3.24)

Overall Goals

- Create a year-round multi-purpose facility to:
    - Support undergraduate and graduate education by providing classroom, sleeping, dining, and social spaces for programs focused on the Second College Grant.
    - Provide much-needed infrastructure (including laboratory space) to support existing and future Grant-focused research activities by Dartmouth and outside institutions, including office and workspace for a Field Technician.
    - Provide space to support collaborative efforts with State and Federal partner agencies, including NH Fish & Game and the Umbagog National Wildlife Refuge.
    - Facilitate local relations by providing meeting space for use by community organizations.

- Buildings would be designed and constructed as "living laboratories" for innovative uses of forest products such as laminated veneer lumber (LVL) and would also utilize significant amounts of Grant-harvested timber in their construction.

- The proposed location of these buildings (just outside the main gate to the Grant) facilitates connection to existing infrastructure (electricity and telecommunications) along Route 16. This infrastructure is not otherwise available within the Grant.

- The facility would be served by an on-site (drilled) well and subsurface wastewater disposal system.

Main Building

- Laboratory (~500 sf)
    - SS tables for specimen processing
    - Double SS sink
    - Refrigerators (2)
    - Chest freezers (2)

- Classroom/Meeting Room (30 pers. capacity - ~700 sf)
    - Large screen for projection
    - Stackable seating and folding tables for maximum flexibility

- Small Meeting Room/Library/Dining (16 pers. capacity - ~300 sf)

    - Tables and chairs
    - Bookshelves

- Office (for Field Technician and Woodlands Office staff - ~200 sf)

- Kitchen (~200 sf)
    - Stove
    - Refrigerator/freezer
    - Microwaves
    - Dishwasher
    - Double sink
    - Prep island

- Bunkrooms (two at ~150 sf ea. = ~300 sf)
    - Similar to Moosilauke Ravine Lodge
    - 2 bunks and 1 double bed in each

- Bathrooms (two at ~300 sf ea. = ~600sf)
    - Similar to Moosilauke Ravine Lodge
    - Toilets/sinks/showers

- Miscellaneous (~500 sf)
    - Entry vestibule(s), hallway(s), storage, mechanical

- Heated by air source heat pumps with potential woodstove(s) for heat and ambience

TOTAL ESTIMATED FLOOR AREA IN MAIN BUILDING = ~3,300 sf

Outbuildings

- Bunkhouse (~1,400 sf)
    - Same general concept as Class of '67 bunkhouse at Moosilauke
    - +/- 24 bunks in two bunkrooms with common area
    - Heated by air source heat pump and wood stove

- Woodshed/Workshop/Storage (~500 sf)
    - Unheated
    - General storage for research activities
    - Workshop for use by Woodlands Office, OPO, researchers

Other

- EV charging stations for College and personal vehicles
- Gravel parking area for ~20 vehicles
- Outdoor meeting/performance space adjacent to main building
- Ground-mounted solar PV array with interconnection to grid for net metering
- Emergency generator

Appendix D

Overview of Dartmouth's Climate & Sustainability Breadth

Dartmouth's greatest strength is the breadth of its climate and sustainability scholarship and teaching. Every department and program, across campus, is engaged in climate and sustainability research, programming, and teaching. Dartmouth already has the ingredients necessary to catalyze our goals.

Dartmouth faculty are engaged in climate and sustainability research and other scholarly practices in all of our schools—Arts & Sciences, the Tuck School of Business, the Thayer School of Engineering, and the Geisel School of Medicine. The Hood Museum of Art and the Hopkins Center for the Performing Arts offer programming that focuses attention on climate, environmental change, and related patterns of social inequity. Our faculty are engaged in applied energy and sustainability research, such as the Greenshot program, Dartmouth's accelerator for climate tech entrepreneurs. Other faculty are working closely with communities to support energy resilience and justice, health and wellness in the context of climate change, and a range of community-based arts and science collaborations. Faculty in environmental, biological, and earth sciences are focused on answering basic and critical questions about the rate and consequences of climate change to ecosystems, particularly in cold regions, including research leading to "natural solutions" for climate change. Dartmouth's humanities and social science faculty seek to understand the ongoing impacts of climate change on communities, engage creative and critical approaches that offer alternative climate imaginaries, and research the political and economic forces that lead (or mislead) climate action. Additionally, an interdisciplinary group of faculty is measuring the impact of climate communications across various touchpoints in our communities, employing innovative strategies that integrate traditional measures of stated intentions with novel implicit attitudinal assessments to inform sustainable climate action.

We are also already teaching about climate change and sustainability in nearly every department and program on campus. Our existing breadth is so comprehensive, though largely untracked, that climate and sustainability operate like an invisible campus-wide curriculum. Currently, the department of Geography offers a Minor in Climate Change Science, which draws upon coursework in Geography, EARS, Math, Biology, and other departments. A joint foreign study program with the Departments of Engineering and German Studies enables student learning and engagement with urban sustainability. The Irving Institute for Energy and Society, which is strategically focused on accelerating the energy transition, including energy justice concerns, supports curriculum development and offers experiential learning opportunities for students. The Leslie Center's Environmental Humanities research group offers curricular support to humanities scholars. The Institute of Arctic Studies has long supported student leave term internships with Arctic climate leaders and, along with the Sustainability Office, is co-leading popular "Arctic Sustainability Immersion" trips for students, co-developed with Arctic community leaders, in Iceland and Finland.

Climate and sustainability are also well-represented in Dartmouth's graduate and professional schools. PhD students in programs such as Ecology, Evolution, Environment and Society (EEES) study how social, ecological, and environmental systems are impacted by climate change, while Earth Sciences (EARS) graduate students study earth surface and environmental processes, climate and cryospheric sciences, and earth and planetary history. The Institute of Arctic Studies and Environmental Studies (ENVS) have consistently funded five graduate fellows each year to support an innovative grant for Arctic climate science education co-created with partners in Greenland and Denmark. There is a new Masters in Energy Transitions program, and Irving's Graduate Energy Fellows Program supports graduate students in all fields at Dartmouth. Tuck faculty are helping MBA students become sustainability leaders at firms and through novel investment strategies while providing additional mentoring and networking at Revers Center for Energy, Sustainability and Innovation. Tuck students have long participated in the United Nations Climate Change Conference (COP) as part of a deeper dive "sprint" course offered during interim periods.

To meet our goals and attend to our guiding principles, we should continue to nurture and grow this breadth and campus-wide commitments to climate and sustainability scholarship and action.

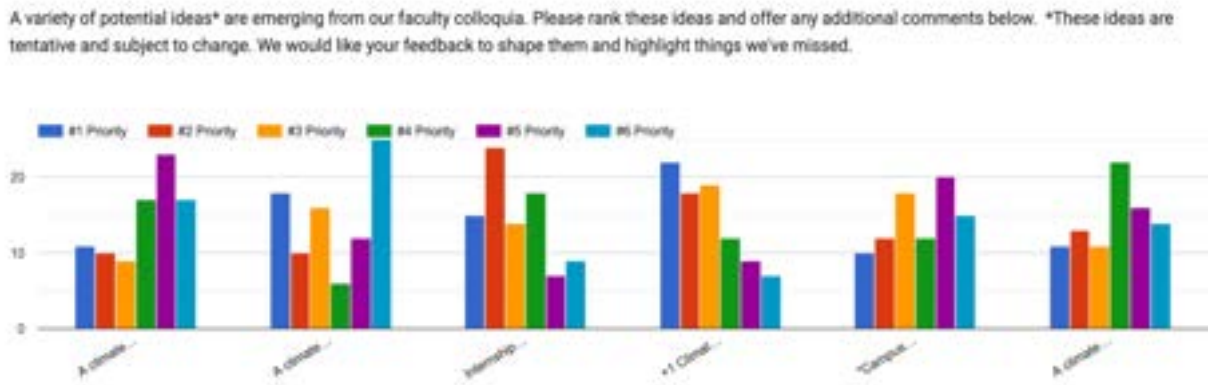
Appendix E

Climate Futures Initiative Student Survey Feedback

Compiled by Ben Stevenson ‘27

88 responses | See Page 24 for survey demographics.

Ranking of Potential Ideas



L-R: Climate Studies Major, Climate Literacy Requirement, Internships, +1 Study Abroad, Campus as Lab, Climate Modified Major

Two Clear Priorities Emerge:

1. **+1 Climate Study Abroad**

Students are consistently thrilled about the idea of plus-one climate study abroad programs. One quarter of students ranked it their top choice, while two thirds ranked it in their top three. Students like the study abroad option because it meets their desire for more immersive learning experiences that move outside the classroom and is open to people across disciplines.

“I found the Iceland Sustainability Immersion trip to be incredibly enriching and rewarding, so more trips like those or along the lines of winterim short courses could be incredible!” - ‘26

2. **Internships & co-curricular support**

Internship and career resources and funding was ranked highly by nearly all students. 43 students specifically suggested it as a priority for outside-the-classroom support, by far the highest of any outside-the-classroom category.

"I think the education around research and internships outside of Dartmouth could be improved. Although I appreciate the CPD and their efforts to help students with graduate school, I think there could be vast improvements in education surrounding graduate school and the continuation of a career in climate after Dartmouth. From a personal standpoint, I have been applying to graduate school and have undergone the process effectively alone." - '25

The climate literacy requirement has both strong support and strong opposition.

Many students ranked the distributive requirement highly for the impact it would have on students across campus; it was the second most popular #1 choice. *"I think it would be amazing if every Dartmouth grad had to take a sustainability focused class. These people will go on to lead industry and policy decisions, so having just a little more sustainability awareness could have a big impact."* - '27

"A climate requirement similar to NW, W, or CI would be invaluable. It wouldn't add another general course—students could pair it with any gen-ed requirement, keeping the total course count the same. This would ensure that all students gain an understanding of climate change, fostering awareness of global issues that might not seem as immediate in places like New Hampshire or New York, where wealth can mask climate realities." - '26

"All students should be required to take a course that would qualify under a Climate World Culture requirement. As a senior, I am currently enrolled in Professor Mankin's course The Natural Environment to complete my major…This class has been incredibly impactful and motivating…Courses like this are essential for fostering climate-conscious citizens. At this pressing time, we need more people. I think requiring such courses would encourage exploratory learning and push students to understand the production of knowledge beyond the classroom. It would be immensely beneficial to engage students with both the science and cultural aspects of climate issues, ensuring that they leave college with a well-rounded understanding of their role." - '25

At the same time, some students expressed concern that forcing students to take climate-related courses could breed resentment. For that reason, the climate literacy requirement received the most last-place rankings of any option. Multiple students pointed out that it could be more important to create an Indigenous studies literacy requirement before a climate requirement. A '25 summed up the critics' perspective: *"My hope is that Dartmouth will offer enough exciting*

opportunities to engage in climate issues across disciplines such that students won't have to be "forced" to take a related course. Also, if we add a climate distrib, then should we also have an Indigenous studies one?"

At the low end of the ranking, the Modified Major, Major, and Campus as Lab all have relatively similar distributions, with most people ranking them third, fourth, fifth, or sixth priority.

Major & Modified Major:

The modified major was more popular than the climate studies major. Students liked the ability to integrate climate into a specific discipline and expressed concern that a climate major would be unemployable or repetitive with the work and classes students already do on campus.

I think that a climate studies major might produce students who are a "jack of all trades master of none" since the subject is so intersectional. From my experience working in the climate and energy space, it's important to have at least one thing you're an expert on (whether its engineering, politics, econ, etc.) and be able to speak the language of the other subjects. For that reason, I think a modified major is a more beneficial option. - '25

"Climate-modified major sounds like an excellent idea. Climate change integrates with all areas of study." - PhD student in Computer Science

Campus As Lab:

The survey results suggest that students are less excited about this compared to the study abroad programs, internship opportunities, student-led initiatives, and a literacy requirement. However, some students, particularly in the question around outside-the-classroom ideas, demonstrated an interest in engaging with local and on-campus projects.

Participating in research and internships funded through Dartmouth has been truly instrumental in my learning and skill development in the climate space…I also would love to see the Second College Grant utilized more especially in ecological research or classes! It's an amazing [place] but I think it is often difficult to access space for many students. I also have learned so much as an intern at the organic farm, so increased funding for research/infrastructure/positions at the O Farm would be a great step. - '26

Survey Questions:

Emerging themes in response to, "What do you need to learn in class to prepare you to be a climate citizen during and after Dartmouth?"

1. **What can I do?**

28 students emphasized the desire to learn about **action steps they can take as an individual or as a collective, to have a positive impact** on the climate crisis. This took a variety of shapes, from an interest in political empowerment and advocacy to consumer impacts. Across the board, students want to take classes that help them answer the question: **what can I do?**

"I wish we were taught what the average citizen can do and should know to maximize their positive climate impact and minimize their footprint." - '28

"I also want curriculum that deals with ethical consumption under a capitalist system that seems unavoidably exploitative. I want to know what my personal responsibilities are as a climate citizen, and what the best ways are to mitigate my impact." - '27

2. **Applied, solutions-oriented learning**

In a similar vein, 12 students called for more **applied, solutions-oriented curriculum**. Examples included case-studies, partnerships with local organizations, and campus-as-lab classes.

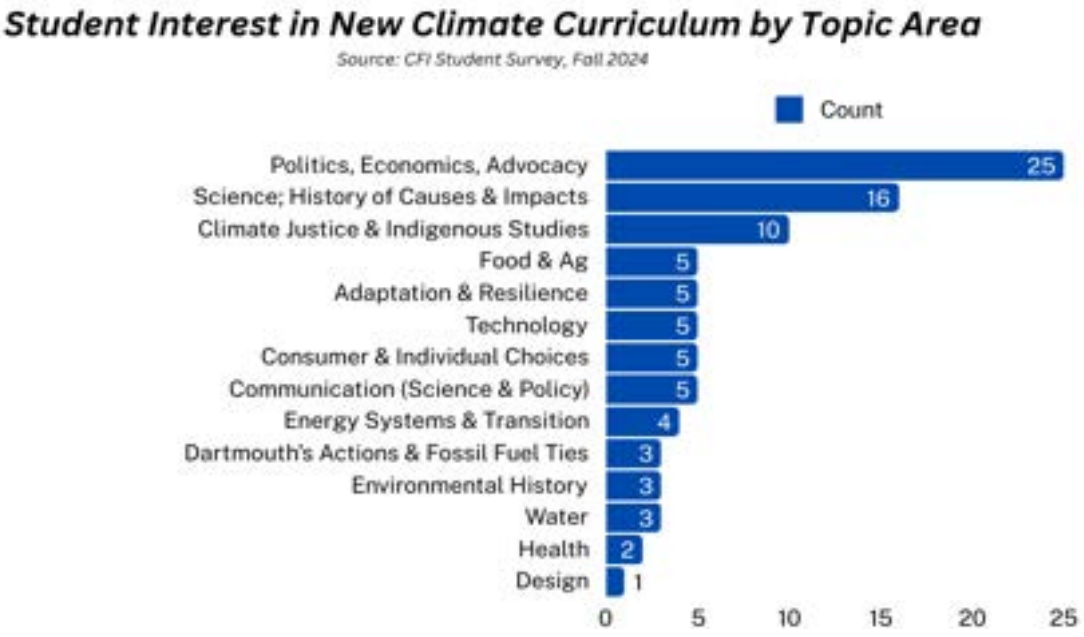
"I want to have curriculum that specifically talks about the green energy transition and how to implement renewables to achieve it. I would want the course to be project oriented and provide students with the tools to analyze a specific place and determine the best energy solution for that place." - '27

"I like the idea of classes devoted to projects aimed at improving campus and the area. If there were multiple annual classes in different departments with different focuses all devoted to producing deliverables that improve campus sustainability, or somehow create opportunities to engage with campus as a space/environment." - '25

3. **Inter- and cross-disciplinary climate curriculum**

Another 12 students advocated for **interdisciplinary integrated coursework across all departments,** particularly those without current options but lots of students, such as Computer Science, Mathematics, and Economics.

"More majors need climate-based coursework - CS, math, many stem disciplines lack easy access points to the field." - '26



Bright Ideas

Diversifying the variety of climate-related classes across departments would create climate classes which fill different distributives (rather than just SOC in ENVS/GEOG) and encourage students to take more climate-related classes to fill their distributives.

What do you want outside the classroom?

1. **Internship/career support**

43 students expressed a desire for **internship & career support**. 5 people specifically wanted more support for careers and internships outside of finance, consulting, and business and criticized the CPD for leaning towards those fields.

2. **Research**

25 students noted **research** funding and opportunities as a priority. 8 students emphasized an interest in local or community-engaged projects and 5 advocated for more campus as lab opportunities. 6 students called for research funding that does not come from the oil money at the Irving Institute.

"I want more opportunities for funding that does not come directly from an Oil company to do climate work. I am very concerned about the potential for any work I do to contribute to Irving Oil greenwashing themselves through Dartmouth." - '27

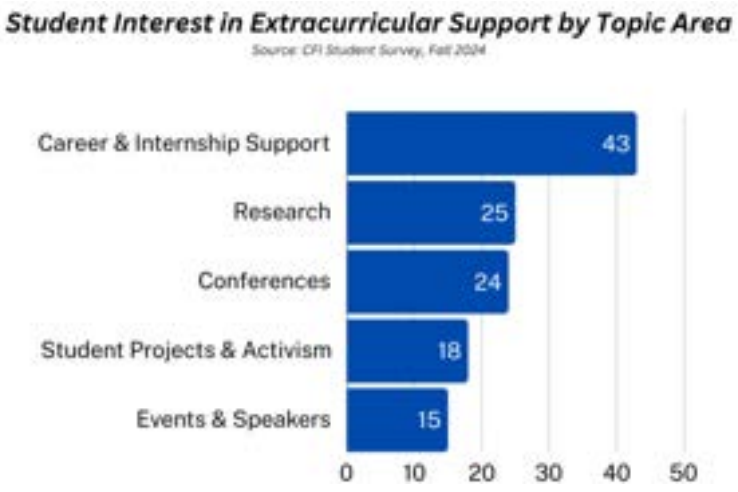
"I want opportunities to engage in Dartmouth's campus decarbonization efforts, either through research or project implementation. Right now, it seems like it is all professional and hard for students to contribute." - '27

3. **Conferences**

24 students would like to see greater opportunities for students to attend conferences in the climate space.

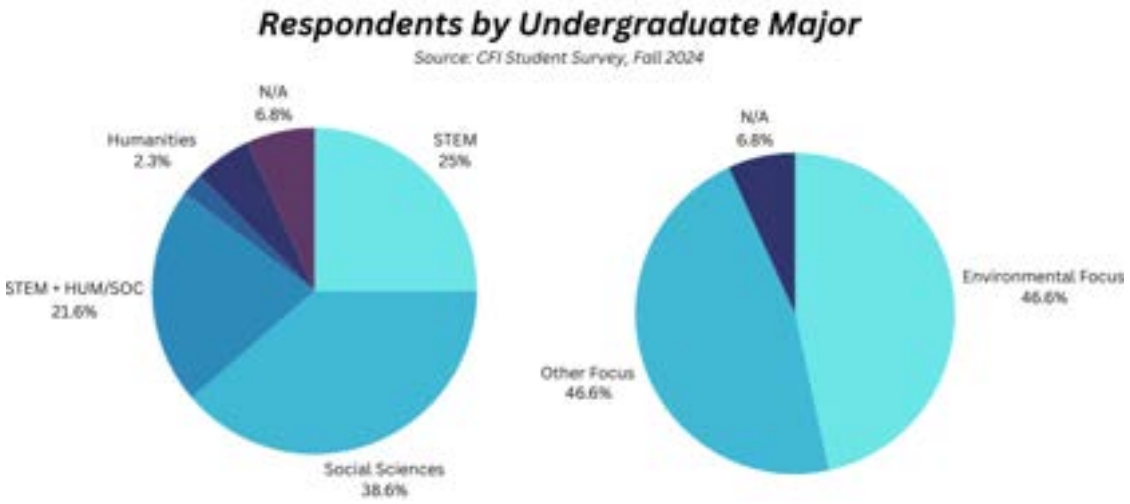
4. **Support and funding for student projects and activism**

18 students advocated for increased **support for student groups, projects, and activism**. 16 of these students explicitly suggested funding available for individual and group projects on climate change *outside the classroom*.

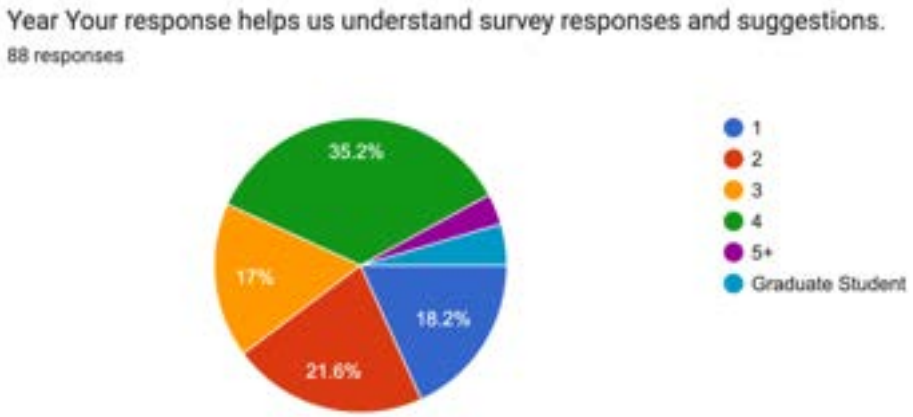


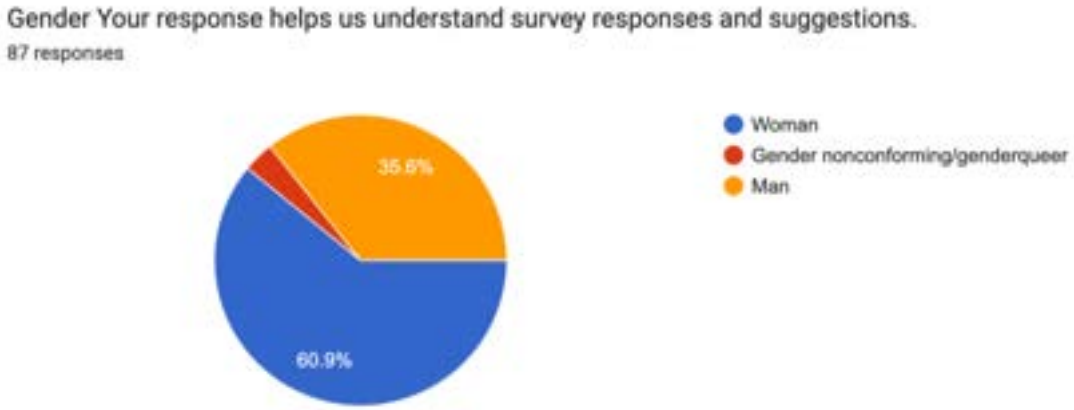
Demographics of Survey Participants

88 responses | 2 percent of undergraduate students (1.5 percent of total student body)



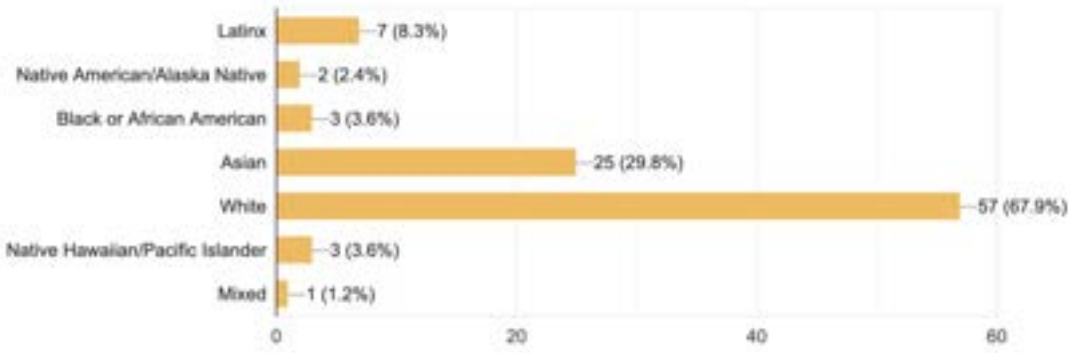
Note: Respondents studying environmental or energy engineering, environmental studies, geography, ecology or animal sciences biology, and earth sciences were included in the environmental focus designation.





How would you describe yourself? Your response helps us understand survey responses and suggestions.

84 responses



Dartmouth Climate Futures Initiative

Faculty Areas of Excellence

Bolded names are key contact people in each category

Cross-cutting Expertise

Paul Argenti (Tuck)
Corporate responsibility & environment

Jason Barabas (GOVT)
American politics, climate knowledge, public policy

Charis Boke (ANTH)
Environmental anthropology, flood disaster mitigation, herbalism

Doug Bolger (ENVS)
Conservation Biology & Land Use Change

Ryan Calsbeek (BIO)
Environmental Change & Evolution

Jesse Cassana (ANTH)
Archaeology, human and environment interactions

Jonathan Chipman (GEOG)
Spatial Analysis, Environmental Change & Social Systems

Kimberly Rose Clark (PBS)
Climate communications

Robert Coats (Rocky)
Outdoor leadership, conservation learning

Michael Cox (ENVS)
Environmental governance, community-based natural resource management

Laurens Debo (Tuck)
Operations management, supply chains, consumer behavior

Jerry DeSilva (ANTH)
Human evolution & the environment

Mark DesJardine (Tuck)
Shareholder activism, sustainability, corporate governance

Nate Dominy (ANTH)
Primate evolution & the environment

Bruce Duthu (NAIS)
Tribal sovereignty, law, climate leadership

Coleen Fox (GEOG, ENVS)
Environmental politics and social dimensions of dam removal

Dimitrios Giannakis (MATH)
Climate dynamics

Richard Howarth (ENVS)
Environmental economics, ecosystem services

Karol Kawiaka (SART, Thayer)
Regenerative design, sustainable engineering

Brenhin Keller (EARS)
Earth history, biosphere and surface Earth system

Klaus Keller (Thayer)
Climate risk management, mitigation, and adaptation

Justin Mankin (GEOG)
Climate variability, dynamics, and modeling

Mark McPeek (BIO)
Ecology, Evolutionary Biology, Environmental Change

Katherine Mirica (CHEM)
Innovations in materials chemistry for environmentally conscious chemical processes

Bethany Moreton (HIST)
Climate, power, and the anthropocene

Elizabeth Murnane (Thayer)
Human-computer interaction, focus on environmental sustainability

Kevin Peterson (BIO)
Ecology, Evolution, and Molecular Paleobiology

Ekaterina Pletneva (CHEM)
Microbial-based strategies for mitigating global warming

Adam Pollack (Thayer)
Natural disasters, risk management, decision making

Carl Renshaw (EARS, Thayer)
Hydrology, rivers' responses to climate & anthropogenic disruptions

Julie Rose (GOVT)
Environmental ethics, economic justice

Xun Shi (GEOG)
GIS, health studies, soil mapping, renewable energy studies

Sarah Slotznick (EARS)
Earth history, iron and the planetary redox budget

Chris Sneddon (GEOG, ENVS)
Political ecology, nature-society relations, social conflicts over water

Christopher Snyder (ECON)
Market accelerator, innovation for climate and pandemics

Leslie Sonder (EARS)
Earth history, large-scale continental deformation

Anant Sundaram (Tuck)
Corporate climate change and sustainability strategies

Justin Strauss (EARS)
Geology, historical tectonic and climatic change

D.G. Webster (ENVS)
Sustainability, fisheries, and environmental governance

Curt Welling (Tuck)
Social entrepreneurship, corporate sustainability, climate

Jack Wilson (SART, Thayer)
Sustainable design

Arianna Varuolo-Clarke (GEOG)
Water & climate change, modeling

Forest & Farm Ecosystems

Matt Ayres (BIOL)
Ecology of climate change, population dynamics

Emily Behrman (BIOL)
Evolutionary biology and adaptation

Danielle Callegari (FRIT)
Italian food and beverage studies, sustainable food, terroir

Nick Camerlenghi (ARTH)
Environmental change, food culture, art

Bala Chaudhary (ENVS)
Soil ecology and conservation, sustainable agriculture, climate mitigation

Susanne Freidberg (GEOG)

Health, Wellness, and Equity

Cheryl Anderson (Geisel)
Climate-informed pediatrics

Candice Black (Geisel)
Microplastics in tissues research

Tim Burdick (Geisel)
Climate health/climate health informatics

Dawn Carey (Dickey)
Global health and development

Elizabeth Carpenter-Song (ANTH)
Rural health equity in New England

Celia Chen (BIO)
Ecotoxicology & Human Health

Cold Regions & the Changing Arctic

Lisa Adams (Geisel)
Indigenous Arctic health and well-being, global health

Mary Albert (Thayer)
Ice cores and climate, Arctic climate adaptation and energy transition

Matt Ayres (BIOL)
Arctic ecology

Ian Baker (Thayer)
Ice/Glacier Mechanics & Dynamics

Melody Burkins (IAS)
Arctic diplomacy, governance, sustainability, and Indigenous knowledge

Jonathan Chipman (GEOL)

Accelerating the Energy Transition

Ian Baker (Thayer)
Materials for energy systems

Benoit Cushman-Roisin (Thayer)
Environmental transport processes, industrial ecology, energy efficiency

Mattias Fitzpatrick (Thayer)
Superconductor circuits

Robert Hansen (Tuck)
Energy economics, environmental economics

Geoffrey Hautier (Thayer)
Materials for energy production and storage, photovoltaics, thermoelectrics

The Environmental Humanities & the Eco-Arts

James Binkoski (PHIL)
Climate change and philosophy, env. ethics

Colleen Boggs (ENGL)
Animal studies and American history

Martina Broner (SPAN)
Environmental cinema and media in Latin America, Indigenous and feminist ecologies

Danielle Callegari (FRIT)
Italian food and beverage studies, sustainable food, terroir

Nick Camerlenghi (ARTH)
Environmental change, food culture, art

Jorge Cuellar (LACS)

Global food chains, sustainability metrics for food

Matt Garcia (LACS, HIST)
Agricultural and migrant labor history

Maron Greenleaf (ANTH)
Green capitalism, carbon credits, deforestation

Caitlin Hicks Pries (BIOL)
Carbon cycling

Lydia Jennings (ENVS)
Soil health, environmental remediation, Indigenous science

David Lutz (ENVS)
Changing forest dynamics, modeling & remote sensing

Lee Lynd (Thayer)
Biomass energy

Frank Magilligan (GEOG)
Hydrology, environmental change in watersheds

William Martin (Tuck)
Business administration, food, agriculture and climate change in France

Doug Moody (LACS, SPAN)
Migrant farmworker labor in the Upper Valley

Theresa Ong (ENVS)
Agroecology, agroforestry

Laura Ray (Thayer)
Robotic tractors

Mukul Sharma (EARS)
Carbon sequestration

Shersingh Joseph Tumber-Dávila (ENVS)
Forest ecology, global environmental change

J.J. Wang (ANTH)
Origins of farming, ancient fermentation, human-animal relationships

Jonathan Winter (GEOG)
Climate variability and change modeling, agriculture

Carl Cooley (Geisel)
Climate-informed pediatric care with an interest in expanding to broader primary care

Kathy Cottingham (BIOL)
Terrestrial and aquatic systems, ecology of infectious disease and public health

Robert Cramer (Geisel)
Climate change impacts on pathogen spread

Marion Crate (Geisel)
Wellness & Lifestyle Improvement

Sarah Crockett (Geisel)
Wilderness emergency medicine, planetary health curriculum, nature-based experiential learning for climate leadership development

Raquel Fleskes (ANTH)
Genetics, ancient DNA, community engagement

Tyler Hartman (Geisel)
Particulate matter and clinical lung disease in children & Environmental impact of early discharge programs

Saeed Hassanpour (Geisel)
Development and implementation of technology to reduce environmental impacts and increase sustainable energy outputs

Brian Jackson (EARS)
Arsenic, trace elements, human health

Margaret Karagas (Geisel)
Environmental exposures to disease

Sally Kraft (Geisel)
Rural health equity

Rob McLellan, Emeritus (Geisel)
Climate and health

Duncan Morhardt (Geisel)
Environmental chemicals and genitourinary system health

Abby Neely (GEOG)
Political ecology of health

Ardis Olson (Geisel)
Environmental exposures and health risks related to arsenic, PFAS, and radon in private well water

George O'Toole (Geisel)
Microbial dynamics and climate change

Laura Paulin (Geisel)
Environmental exposures like air pollution and clinical outcomes in respiratory disease

Heiko Pohl (Geisel)

Arctic/Polar Ecosystems & Climate

Lauren Culler (ENVS & Arctic Institute)
Ecological change in the Arctic, arctic education

Xiahong Feng (EARS)
Arctic hydrological cycles, global carbon cycle

Tatiana Filimonova (RUSS)
Indigenous writings in Russia's North, Siberia, and the Far East

Robert Hawley (EARS)
Glaciers and climate, physical glaciology

Caitlin Hicks Pries (BIOL)
Cold region ecosystems

Meredith Kelly (EARS)
Quaternary paleoclimatology, informing present climate change

Colin Meyer (Thayer, EARS)
Glaciology, snow and ice mechanics

Mathieu Morlighem (EARS)
Role of glacier ice and ice sheets in climate system

Yoshihiro Nakayama (Thayer)
Sea ice modeling, oceanography

Laura Ogden (ANTH)
Environmental change & communities in polar regions

Erich Osterberg (EARS)
Ice core records to better understand climate and air pollution impacts; local community climate resilience

Marisa Palucis (EARS)
Evolution of Arctic landscapes in response to climate change

Donald Perovich (Thayer)
Sea ice geophysics, Arctic system and climate change

Christopher Polashenski (Thayer/CRREL)
Arctic energy systems & ice/glaciers, climate sea ice

Jay Satterfield (Rauner Library)
Polar History

Erland Schulson (Thayer)
Ice mechanics & dynamics

Hélène Seroussi (Thayer)
Glaciology, climate science, ice-ocean interactions

Simon Shepherd (Thayer)
Space weather and climatology

Justin Strauss (EARS)

Connie Helfat (Tuck)
Business strategy, firm decision-making, energy

Richard Howarth (ENVS)
Environmental economics, energy transitions

Jennifer Jerit (GOVT)
Sustainability behaviors and decision-making around green energy choices

Sarah Kelly (GEOG)
Energy justice, hydropower, Indigenous rights, climate resilience

Mark Laser (Thayer)
Biomass, sustainable energy, integrated food and energy systems

Yan Li (Thayer)
Thermal energy efficiency

Erin Mansur (Tuck)
Environmental and energy economics

Erin Mayfield (Thayer)
Sustainable systems, energy transitions, environmental and energy policy

Geoff Parker (Thayer)
Energy economics, policy, strategy, innovation, market structure

Steven Peterson (Thayer)
Energy systems, sustainable engineering

Jonathan Silverthorne (Tuck)
Director, Revers Center for Energy, Sustainability and Innovation

James Smith (Tuck)
Decision science, energy systems

Charlie Sullivan (Thayer)
Power electronics, energy efficiency & renewable energy

Jacqueline Wernimont (FILM)
Visualizing energy data

Elizabeth Wilson (ENVS)
Energy systems & new technologies, off-shore wind, region transmission organizations

Vikrant Vaze (Thayer)
Transportation

Political ecology in Latin America

Meryem Deniz (GERM)
German literature and poetics, migration, environmental humanities

Chad Elias (ARTH)
Middle East petrocultures (resource extraction, carbon imaginaries, species extinction)

Meredith Ferguson (NAIS, ANTH)
Indigenous environmental studies, ecology and art in Oceania

Vievee Francis (ENGL)
Blackness and nature explored through poetry

Alysia Garrison (ENGL)
Ecological literary modes

Matteo Gilebbi (FRIT)
Environmental humanities, posthumanism, film

Christie Harner (ENGL)
Ecocriticism and animal studies

Jane Henderson (GEOG)
Blackness and nature

Susannah Heschel (JWST)
Jewish Ecology

Lucas Hollister (FRIT)
French literature and film, dark ecological fiction

Matt Hooley (NAIS)
Indigenous studies and ecocriticism, resource colonialism

Yuliya Komska (GERM)
Politics of German environmentalism

Jodie Mack (FILM)
Experimental film, sense of place

Petra McGillen (GERM)
Berlin, Green City program

Sandra Mefoude Obiono (COLT, FRIT)
Environmental crises and human rights

Laura Ogden (ANTH)
Environmental anthropology, politics of environmental change and conservation

Graziella Parati (ITAL, COLT)
Mediterranean migration studies

Jami Powell (Hood)

	Reducing medical waste and pollutants in systemic medical policies and operations through planetary health approaches **Susan Roberts (Geisel)** *Upcycling food waste into healthy food* Megan Romano (Geisel) *Research on PFAS and endocrine-disrupting chemical exposure in women's health and pediatric care* Lucas Salas (Geisel) *Molecular mechanisms of environmental carcinogens* Anne Sosin (ANTH) *Rural health equity, public health* Elijah Stommel (Geisel) *Increasing cyanobacterial blooms and amyotrophic lateral sclerosis; Air pollution and Neurodegeneration* Thamolwan Surakiatchanukul (Geisel) *Sustainability in ophthalmic surgeries & procedures* Zane Thayer (ANTH) *Environment, Human Biology & Health* Charles Thomas (Geisel) *Sustainability, climate resilience, Oncology; health system decarbonization* Jonathan Winter (GEOG) *Drivers of tick-borne disease expansion*	*Arctic/Polar Geology* Hunter Snyder (Thayer) *Arctic fisheries and energy policy* Jessica Trout-Haney (BIOL) *Aquatic ecosystems in the Arctic and northeastern U.S.* Lindsay Whaley (LING) *Environmental change and native languages in Alaska and Siberia* **Ross Virginia (ENVS)** *Ecosystems ecology in Greenland and Antarctica*		*Indigenous art* Christopher Sollars (SART) *Art and the anthropocene, waste as art* Silvia Spitta (SPAN) *Environmental humanities, contemporary Latin America* **Zenovia Toloudi (SART)** *Art and architecture to bridge human-nature gap* David Van Wie (MALS) *Environmental journalism* Jacqueline Wernimont (FILM) *Digital humanities, Visualizing energy data* **Melissa Zeiger (ENGL, WGSS)** *Garden politics* Robert Zeinstra III (HIST) *Environmental and social histories of South Africa, human-animal relations*

While the CFI process did not address questions of faculty hiring, several "gaps" emerged in discussions that we should consider to appropriately support these opportunities for excellence, as described below:

- To support Irving's focus on accelerating the energy transition, we suggest hiring a group of faculty whose research and teaching focus on energy policy, climate policy, energy finance, and energy economics. Though Economics and Government are two of Dartmouth's most popular majors, there is little coursework available to students interested in climate and sustainability.[1] This hiring focus is supported by Tuck faculty, who articulated this hiring emphasis as a top priority, and also by leadership in the Rockefeller Center for Public Policy, where there is interest in deepening Rocky's environmental and climate policy focus.
- Because of projected retirements, Dartmouth should hire an Arctic ecosystem scientist (which will be needed to support the NSF Joint Science & Education Program [JSEP] in Greenland). While Arctic and cold regions are a major area of excellence, our current faculty primarily represent the biophysical sciences and engineering. For greatest impact, and to integrate our focus on cold regions and the Arctic across campus, we suggest hiring a social scientist or humanities scholar, particularly someone who works in Arctic Indigenous environmental issues as well as an Arctic international relations scholar.
- Senior leadership should evaluate upcoming retirements in EEB and identify hires to support our focus on forests, forest dynamics and climate change. In particular, there is a need for faculty teaching and scholarship that examines animal ecology (extinctions, migration, etc.) in the context of climate change in cold regions. There may be opportunities to fund a Richard T. Holmes Professorship in Animal Ecology.
- Because climate and sustainability concerns are so central to the Tribal Leadership Academy interests, as well as Dartmouth's overall approach to climate and sustainability, potential hires should support NAIS's teaching and scholarly priorities.

[1] There is some research and teaching in these departments related to climate and sustainability. For example, Jennifer Jerit, in Government, is currently teaching and conducting research on public opinions about climate change and sustainability, while Chris Snyder, in Economics, co-leads the Market Shaping Accelerator (MSA), which seeks to shape the markets for innovation, including related to climate and carbon removal.