



Planetary Health Report Card:

Geisel School of Medicine



Dartmouth
GEISEL SCHOOL OF
MEDICINE

2020-2021 Contributing Team:

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Summary of Findings

Curriculum	D-
<ul style="list-style-type: none"> Planetary health (PH) is inadequately included in the core curriculum and almost entirely absent from enrichment electives. PH connections should be made explicit in the curriculum with the introduction of dedicated time. The medical school should identify PH (including climate change) as a priority theme and include that material in learning objectives, test questions, and lecture content Strengths: PH and health equity are described in two new M1 lectures on environmental racism and discrimination, developed as part of the Race and Health Equity Longitudinal Curriculum in 2020-2021. 	
Interdisciplinary Research	D+
<ul style="list-style-type: none"> Dartmouth lacks an institute for planetary health research, yet has some research underway in this area. Research related to PH (i.e. waste audits, impacts of air pollution, climate change modeling) is led by independent researchers, and is not centralized or easily accessible. The medical school should commit to recruitment of researchers interested in PH and identify researchers at the institution who are already doing work in this area. Forming a centralized website for projects related to PH and healthcare sustainability would help to increase transparency in this area. 	
Community Outreach and Advocacy	F
<ul style="list-style-type: none"> Geisel lacks awareness about environmental advocacy programming amongst faculty and staff. Healthcare sustainability is not transparent within the medical school or at our affiliated hospitals. Patients have access to educational materials related to topics in environmental health such as air pollution or chemical exposures, but this access is physician dependent and varies by department. The newly formed MS4SF chapter at Geisel is working to expand connections within sustainability across the campus. We aim to bring together faculty and staff doing work related to PH via forming a website and newsletter in the future. 	
Support for Student-Led Initiatives	A-
<ul style="list-style-type: none"> Dartmouth College has a number of established resources available to undergraduates and medical students, including funding for projects and sustainability initiatives. Most medical students are unaware of these opportunities, however, and Geisel does not have active relationships with departments hosting these grants. The medical school administration could further support student initiatives by ensuring medical students are aware of existing opportunities, cultivating relationships with the departments and resources already available on campus, and developing a student fellowship or research program dedicated to PH. 	
Sustainability	D
<ul style="list-style-type: none"> Dartmouth College has a well integrated Sustainability Office that is involved in green construction, sustainable food and supply procurement, initiatives related to divestment, and community engagement around sustainability. However, they operate separately from the medical school. While buildings at the medical school fall under campus buildings for green construction and renovation, internal operations like procurement and waste are managed by the medical school as a separate entity. Geisel could benefit from enhanced communication with the Sustainability Office to increase green practices including sustainable purchasing, food and beverage options, transportation initiatives, and waste management. 	

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance defines planetary health as “a field focused on characterizing the human health impacts of human-caused disruptions of Earth's natural systems.” This definition is intentionally broad, intended to encompass the multitude of ways that the environment can affect health, including water scarcity, changing food systems, urbanization, biodiversity shifts, natural disasters, climate change, changing land use and land cover, global pollution, and changing biogeochemical flows. The health of humanity is dependent on our environment and our environment is changing rapidly and in disastrous ways. Although the World Health Organization has called climate change “the greatest threat to global health in the 21st century,” many medical school’s institutional priorities do not reflect the urgency of this danger to human health.

As future health professionals, we must be prepared to address the impacts of human-caused environmental changes on our patients’ health . This preparation is in the hands of the institutions providing our medical training. It is imperative that we hold our institutions accountable for educating medical students about the health impacts of climate change and other anthropogenic environmental changes, generating research to better understand health impacts and solutions, supporting related student initiatives, embracing sustainable practices as much as possible, and engaging with surrounding communities that are most affected by environmental threats. Because climate change and environmental threats disproportionately affect vulnerable populations (for example, communities of color, older adults sensitive to health threats, and individuals in low-resource settings), these issues are inherently ones of equity and justice.

With the purpose of increasing planetary health awareness and accountability among medical schools, we have created a Planetary Health Report Card that medical students internationally can use to grade and compare their home institutions on an annual basis. This medical-student-driven initiative aims to compare medical schools on the basis of discrete metrics in five main category areas: 1) planetary health curriculum, 2) interdisciplinary research in health and environment, 3) university support for student planetary health initiatives, and 4) community outreach centered on environmental health impacts 5) medical school campus sustainability.

Planetary Health Curriculum

Section Overview: This section evaluates the integration of relevant planetary health topics into the medical school curriculum. Today's medical students will be on the frontlines of tackling the health effects of climate change. Therefore, it is critical that medical students are trained to understand the health effects of climate change, as well as planetary health more broadly. Topics like the changing geography of vector-borne diseases, the health consequences of air pollution, environmental health inequities, and disaster response principles must be part of every medical school's core curriculum.

Curriculum: General

1. Did your medical school offer elective courses to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does not have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a lecture on planetary health.
0	No, the medical school has not offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
Score explanation: Currently there are no electives related to planetary health or climate change. There are faculty interested in creating an elective focused on planetary health, but this is in its infancy.	

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme temperature health risks and climate change, as well as the socioeconomic/racial disparities in extreme heat exposure?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
Score explanation: This topic is not currently covered in core curriculum or elective coursework.	

3. Does your medical school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

4. Does your medical school curriculum address the impact of climate change on the changing patterns of infectious diseases?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: In *Introduction to Infectious Diseases*, Dr. Zuckerman introduces the concept that infectious diseases are impacted by a variety of factors, including climate, and he emphasizes that changing climate can bring about changes in the distribution of infectious diseases. Dr. Mullins discusses the changing range of infectious diseases because of changes in vector habitat (for example, Lyme Disease in North America, as the natural habitat of the disease vector (*Ixodes scapularis*) is extended), global-scale changes in weather (for example, changes in the distribution of malaria with changing precipitation patterns), and weather extremes (for example, increased incidence of gastrointestinal and respiratory illnesses in the wake of Hurricane Katrina). Dr. Schwartzman also discusses the changes in vector range and disease incidence with relation to parasitic diseases.

5. Does your medical school curriculum address the cardiorespiratory health effects of climate change, including air pollution?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: After implementation of the Race and Health Equity Longitudinal Curriculum (RHE LC), there will be a session in the M1 Respiratory course entitled “Environmental Discrimination: Asthma, TB and Redlining” which discusses environmental factors that impact pulmonary diseases and health disparity issues that impact the burden of respiratory disease in under-resourced environments.

6. Does your medical school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

7. Does your medical school curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

8. Does your medical school curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, children, homeless populations, and older adults?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

9. Does your medical school curriculum address the unequal health impacts of climate change globally?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

Curriculum: Environmental Health & the Effects of Anthropogenic Toxins on Human Health

10. Does your medical school curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

11. Does your medical school curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

12. Does your medical school curriculum address the unique climate and environmental health challenges that have impacted and are impacting Indigenous communities?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
Score explanation: This topic is not currently covered in core curriculum or elective coursework.	

13. Does your medical school curriculum address the outsized impact of anthropogenic environmental toxins on marginalized populations such as those with low SES, women, communities of color, children, homeless populations, and older adults?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
Score explanation: After implementation of the RHE LC, there will be two M1 sessions on environmental racism and discrimination including an M1 Respiratory course entitled “Environmental Discrimination: Asthma, TB and Redlining” and in the M1 Hematology course discussing redlining and inequitable exposure to lead, factories and carcinogens. These two sessions are in development.	

Curriculum: Sustainability

14. Does your medical school curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
Score explanation: Geisel has a culinary medicine enrichment elective that has dedicated slides to the environmental benefits of a plant-based diet.	

15. Does your medical school curriculum highlight the waste generated by the healthcare system and identify ways to advocate for and implement sustainable best practices in health care?

3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

Score explanation: This topic is not currently covered in core curriculum or elective coursework.

Curriculum: Clinical Applications

16. In training for patient encounters, does your medical school’s curriculum introduce strategies to have conversations with patients about the health effects of climate change?

2	Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework.
0	No, there are not strategies introduced for having conversations with patients about climate change

Score explanation: This topic is not covered in core curriculum or elective coursework.

17. In training for patient encounters, does your medical school’s curriculum introduce strategies for taking an environmental history or exposure history?

2	Yes, the core curriculum includes strategies for taking an environmental history.
1	Only elective coursework includes strategies for taking an environmental history.
0	No, the curriculum does not include strategies for taking an environmental history.

Score explanation: This topic is not covered in core curriculum or elective coursework.

Curriculum: Administrative Support for Planetary Health

18. Is your medical school currently in the process of improving Education for Sustainable Healthcare (ESH)/planetary health education?	
4	Yes, the medical school is currently in the process of making major improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making minor improvements to ESH/planetary health education.
0	No, there are no improvements to planetary health education in progress.
<p>Score explanation: There is a recently formed sub-committee focused on planetary health within a medical-school wide group dedicated to making longitudinal curricular changes related to race and health equity. Minor curricular improvements are currently being drafted, but is an ongoing area of collaboration.</p>	

19. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?	
6	Planetary health/ESH topics are well integrated into the core medical school curriculum.
4	Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.
2	Planetary health/ESH is not integrated and is primarily addressed in (a) standalone lecture(s).
0	There is minimal/no education for sustainable healthcare.
<p>Score explanation: At this point, components of planetary health are taught in standalone lectures in multiple courses. However, further integration is needed throughout the core curriculum at Geisel.</p>	

20. Bonus: Does your medical school have a program that offers incentives for faculty/departments to develop new planetary health/ESH courses and/or incorporate planetary health/ESH into existing courses?	
1*	Yes, the medical school has an incentive program.
0	No, the medical school does not have an incentive program.
<p>Score explanation: There is no incentive program.</p>	

Are there additional curriculum resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Geisel is very supportive of students seeking out individual learning opportunities, such as electives online or through other institutions. Many students also pursue additional degrees, such as a Masters in Public Health, where topics like those noted above can be covered. We have identified many critical areas, however, where climate change needs to be incorporated into the core curriculum as a result of its far reaching and disparate impacts. The Race and Health Equity Longitudinal Curriculum (RHE LC) is working to incorporate several of these topics into our courses, but we have a ways to go.

Interdisciplinary Research

Section Overview: *This section evaluates the quality and quantity of interdisciplinary planetary health research at the medical school and broader institution. Interactions between health and the environment are complex and multifactorial. While climate change has been extensively studied from an environmental science perspective, planetary health is an emerging field. As leading health institutions with talented researchers and research resources, medical schools should fund research studying the health effects of climate change and anthropogenic environmental toxins. This obligation is particularly strong because the public and policymakers are more attentive to climate change when its implications for human health are emphasized.*

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
4	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health and healthcare sustainability.
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in a planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Medicine who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the institution, but none associated with the medical school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or medical school at this time.
<p>Score explanation: At Geisel, there are a couple of faculty who are working in the realms of planetary health or healthcare sustainability. Dr. Heiko Pohl, a gastroenterology professor at Dartmouth, recently completed a waste audit on endoscopies performed at the hospitals here in the Upper Valley. This study was submitted to JAMA in December 2020. Dr. Laura Paulin is a pulmonologist and professor in epidemiology who studies air pollution and its impact on human health. Outside of the medical school, the graduate program Ecology, Evolution, Environment, and Society (EEES) at Dartmouth has researchers working on projects related to planetary health. For example, the lab of Dr. Kathy Cottingham studies the distribution of Lyme Disease in a changing climate. Additionally, Dr. Justin Mankin leads the Dartmouth Climate Modeling and Impacts Group that models aspects of climate change.</p>	

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?	
3	There is at least one dedicated department or institute for interdisciplinary planetary health research.

2	There is not currently a department or institute for interdisciplinary planetary health research, but there are plans to open one in the next 3 years.
1	There is an Occupational and Environmental Health department, but no interdisciplinary department or institute for planetary health research.
0	There is no dedicated department or institute.
<p>Score explanation: Dartmouth does work related to environmental exposures in the Children’s Environmental Health and Disease Prevention Research Center. This group is not focused on exposures related to climate change, however. Our Environmental Health and Safety department does work related to laboratory safety and waste management. The researchers noted above do their work separately from an institution or within the realm of The Dartmouth Institute (TDI) or Dartmouth graduate programs. An Institute does not exist to bring together the work underway here that relates aspects of environmental and planetary health.</p>	

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.
1	No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.
0	There is no process, and no efforts to create such a process.
<p>Score explanation: Research underway at Dartmouth is led by the investigators and the institution. The community does not have a clear way to give input or make decisions about research projects here.</p>	

4. Does your institution have a planetary health website, or a website centralizing various campus resources related to health and the environment?	
3	There is an easy-to-use, adequately comprehensive website that centralizes various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that attempts to centralize various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The institution has an Office of Sustainability website that includes some resources related to health and the environment.

0	There is no website.
<p>Score explanation: Dartmouth College has an Office of Sustainability with a comprehensive website about campus sustainability initiatives. Direct ties to health and the environment are not clear here, however. Additionally, the Children’s Environmental Health and Disease Prevention Research Center also has a website that brings together their research related to pediatric and maternal environmental exposures, but again this is not directly tied to planetary health. While these exist, they are lacking in centralizing projects related to planetary health.</p>	

5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the institution has hosted more than one conference or symposium on topics related to planetary health in the past year, including at least one on climate change.
3	Yes, the institution has hosted one conference or symposium on topics related to planetary health in the past year.
2	Yes, the institution has hosted a conference on topics related to planetary health in the past three years.
1	The institution has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the institution has not hosted a conference on topics related to planetary health in the past three years.
<p>Score explanation: The Physicians for Human Rights group at the Geisel School of Medicine at Dartmouth hosted a conference on Planetary Health in January 2019. The Real Organic Project Symposium is also hosted at Dartmouth each year- a conference that brings together farmers, scientists, and activists working to keep the integrity of the organic label. Many of the topics are directly related to planetary health: soil health, farming and climate, and more. It would have been hosted at Dartmouth in 2020, but was postponed due to COVID.</p>	

6. Has your institution or medical school joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education?	
2	Yes, the medical school has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education.
1	Yes, the institution has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education, but the medical school specifically has not.
0	No, the institution has not joined the Planetary Health Alliance or the Global Consortium on Climate and Health Education.

Score explanation: Dartmouth College has joined the Planetary Health Alliance, but not the Global Consortium on Climate and Health Education. Dartmouth-Hitchcock Medical Center is also a member of Practice Greenhealth (while not noted above, we believe this is important to note).

Section Total (7 out of 19)

D+

Community Outreach and Advocacy

Section Overview: *This section evaluates medical school engagement in community outreach and advocacy efforts associated with planetary health. Researching and teaching planetary health is necessary but not sufficient. It is critical that institutions also directly engage with communities most affected by environmental health harms. Although climate change is a problem largely created by those with power and resources, its impacts fall disproportionately on under-resourced populations and communities of color. Institutions should partner with local communities affected by climate change and pollution to share information about environmental health threats, advocate together for change, and provide opportunities for students to be a part of this work.*

1. Does your medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organizations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organization to promote planetary and environmental health.
1	The institution partners with community organizations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p>Score explanation: Geisel does not have consistent partnerships with organizations involved in environmental health. Students can independently volunteer with Willing Hands, a local gleaning organization that recovers nutritious food from supermarkets and helps grow nutritious food for pantries in the region. Involvement with this organization is largely student directed.</p>	

2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The medical school offers community-facing courses or events at least once every year.
2	The medical school offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.
1	The institution has offered community-facing courses or events, but the medical school was not involved in planning those courses or events.
0	The medical school has not offered such community-facing courses or events.
<p>Score explanation: The Geisel School of Medicine does not have any such community facing events. Within the college, the Irving Institute for Energy and Society has some community-facing events</p>	

related to climate change. These events are primarily focused on the intersection of energy and climate change. However, they have hosted events related to health, for example Dr. Laura Paulin spoke about air pollution and human health through a recent [webinar](#).

3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?

2	Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are sometimes included in communication updates.
0	Students do not regularly receive communications about planetary health or sustainable healthcare.

Score explanation: No such communication exists at Geisel or at DHMC, and the undergraduates are the Sustainability Office's target audience. The Sustainability Council at DHMC may provide these communications in the future, but does not currently.

4. Does the medical school offer continuing medical education (CME) courses that address planetary health and/or sustainable healthcare?

2	Yes, multiple in-person or online CME courses relating to planetary health and/or sustainable healthcare are offered, including at least one with a primary focus of planetary health.
1	Yes, one in-person or online CME course related to planetary health and/or sustainable healthcare is offered.
0	There are no CME courses on planetary health or sustainable healthcare topics.

Score explanation: There are no existing opportunities through the medical school for CME courses related to those topics. Review of [archived CME and CNE materials](#), [upcoming Grand Rounds](#), or [upcoming trainings](#) at DHMC at the time of report completion showed no courses that covered planetary health and/or sustainable healthcare. There may be qualifying CME opportunities that we missed, but the score was based on the available evidence.

5. Do hospitals affiliated with your medical school have accessible educational materials for patients about environmental health exposures?

2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.

0	No affiliated medical centers have accessible educational materials for patients.
<p>Score explanation: Patient educational materials related to environmental health exposures, for example in pulmonology, are available upon request or when given by a physician if they deem it relevant. This varies between departments at Dartmouth Hitchcock Medical Center (DHMC). We were not able to find online versions of these materials.</p>	

6. Do hospitals affiliated with your medical school have accessible educational materials for patients about climate change and health impacts?	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated hospitals have accessible educational materials for patients.
<p>Score explanation: DHMC or affiliated hospitals do not have accessible educational materials related to climate change and health impacts.</p>	

Section Total (2 out of 14)	F
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Support for Student-Led Planetary Health Initiatives

Section Overview: This section evaluates institutional support for student-led planetary health initiatives, such as funding, fellowships, programming, and student groups. Planetary health is a young field and, as young people facing a future deeply shaped by climate change, students are often some of the first at an institution to engage with it. Institutions should provide support for students to engage in sustainability quality improvement (QI) initiatives, discover mentors in their area of interest, and receive funding for planetary health projects.

1. Does your institution offer support for medical students interested in enacting a sustainability initiative?	
2	Yes, the institution offers grants available to medical students for students to enact sustainability initiatives.
1	The medical school encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, but there is no student funding available.
0	No, the institution does not offer opportunities or support for sustainability initiatives.
<p>Score explanation: Medical students are eligible to apply for project funding through Dartmouth College's Sustainability Office, though this information is not easy to find and few medical students are likely aware of this resource. In addition, there are unfunded QI opportunities within the second and fourth year curricula that could be used to focus on sustainability or planetary health-related projects. Medical students can also submit funding requests to the medical school Student Government, and sustainability-focused initiatives would be considered.</p>	

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
3	The institution offers an explicit paid fellowship for medical students to do research related to planetary health and/or sustainable healthcare.
2	The institution offers paid research opportunities for students and planetary health/sustainable healthcare projects would be considered eligible.
1	There are unfunded research opportunities for students to perform research related to planetary health/sustainable healthcare.
0	There are no opportunities for students to receive funding for planetary health/sustainable healthcare research.

Score explanation: Both Dartmouth College and Geisel offer funded research opportunities to medical students, a number of which could be used to conduct a project related to sustainability and/or climate change and health as long as other existing criteria were met. These include M1 summer research funding, the Rodis Fellowship on compassionate care, the Swigart Ethics Fellowship, and the [Schweitzer Fellowship](#). In addition, medical students are eligible to apply for mini-grants through the [Irving Institute for Energy](#) at Dartmouth College. There are no dedicated funds for planetary health, climate change and health, or sustainable healthcare.

3. Does the medical school have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.

2	The medical school has a webpage with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a medical school webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.
0	There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

Score explanation: There is no webpage within the medical student website that would meet the above criteria. Dartmouth College hosts websites for the Sustainability Office and the Irving Institute for Energy, but neither of these is specific to planetary health. As there were no pages within the medical school or our broader institution that met the above criteria, we assigned a score of 0.

4. Does your medical school have funded, registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?

2	Yes, there is a funded student organization with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it lacks faculty support and/or funding.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.

Score Explanation: The Geisel chapter of Medical Students for a Sustainable Future (MS4SF) was started in the summer of 2020 and is eligible for student group funding through the medical school.

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for sustainability best practices?

1	Yes, there is a student representative that serves on a medical school or institutional decision-making council.
0	No, there is no such student representative.

Score explanation: There is no single, overarching institutional decision-making council at Dartmouth. Undergraduate students sit on most institutional level sustainability groups such as the Sustainability Working Group that created the “Our Green Future” report for the College, and are also present on almost all ad hoc committees. There is no formal position within the medical school’s Student Government body or Medical Education Committees. Similarly, the graduate student council (for which combined-degree students are eligible) does not have a dedicated position. Score based on opportunities for undergraduate student involvement.

6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)

1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.
1	Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students) that follow Leave No Trace principles.

Score explanation:

(1) The Dartmouth Organic Farm hosts the Farm Club, which is primarily run for undergraduate students but welcomes interested medical students. Starting in the spring of 2021, medical students will have the opportunity to volunteer at the Farmacy at Dartmouth-Hitchcock Medical Center and learn about organic agriculture, running small vegetable gardens, and links to healthcare. Score of 1.

(2) The Physicians for Human Rights Geisel chapter organizes a yearly conference, and their 2019 theme was planetary health. Dartmouth College hosts a number of student-facing events related broadly to sustainability and climate change, some of which include discussions on the impact of climate

change on health. One recent example is a talk by Dr. Diana Hernandez (Mailman School of Public Health, Columbia University) on [“Energy, Poverty and Health in a Changing Climate: Implications for Policy and Practice”](#). Score of 1.

(3) Per the Sustainability Office, there have been a number of events where students are able to hear from local and national environmental justice about the climate and environmental challenges they face. None of these have included an angle specific to how health providers can partner with communities to address these challenges. To our knowledge, the last events within the medical school that may qualify for this category took place in 2019 (PHR Planetary Health conference) and 2018 (discussion with food justice activist and urban farmer Karen Washington). Because of this, score of 0 was assigned.

(4) The Hopkins Center for the Arts hosts a wide array of cultural events throughout the year, and their programming in the 2019/2020 and 2020/2021 seasons has included several performances related to climate change and planetary health. These have included a screening of [The Biggest Little Farm](#), performance of [The Force of Thing: An Opera for Objects](#), and a performance of the play [The Living](#) with panelists discussing the intersections between climate change, emerging pandemics, and politics of healthcare. Score of 1.

(5) There are numerous local environmental organizations in the Upper Valley region, many focused around sustainable and organic agriculture, local food systems, and discussions about local energy needs and housing. Medical student groups have occasionally organized gleaning volunteer days with Willing Hands, but students are always welcome to volunteer with those organizations on an individual basis. Score of 1.

(6) The Dartmouth Outing Club organizes many opportunities for students to engage in outdoor activities. These are primarily aimed at undergraduates, but graduate and medical students are able to use their resources, equipment, and take exercise classes. Score of 1.

Total score: 5/6

Section Total (12 out of 15)	A-
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Campus Sustainability

Section Overview: *This section evaluates the support and engagement in sustainability initiatives by the medical school and/or institution. The healthcare industry is a major contributor to greenhouse gas emissions as well as pollution that harms local, regional, and global ecosystems. While healthcare is, by nature, a resource-intensive endeavor, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinizing every aspect of how our systems operate, from where we source our energy, to how we build our infrastructure, to what companies we invest in. Our medical schools, clinics, and hospitals must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimizing environmental impact.*

1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of medical school and/or hospital sustainability.
1	There are no salaried sustainability staff, but there is a sustainability task force or committee
0	There are no staff members or task force responsible for overseeing campus sustainability
<p>Score explanation: Dartmouth College does have an Office of Sustainability. Within the Office Of Sustainability, there is no one dedicated to sustainability at the medical school. Likewise, the main hospital affiliated with Geisel, Dartmouth-Hitchcock Medical Center, has a sustainability council that is newly reformed after the sustainability programs at the hospital were cut in 2016 due to budgetary restrictions.</p>	

2. Does your medical school and/or institution have a stated goal of carbon neutrality by 2050?	
4	The medical school is already carbon neutral.
3	Yes, there is a stated carbon neutrality goal and the medical school has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal, but the medical school has not created a plan to reach that goal or the plan is inadequate.
1	There is a CO2 emission reduction goal, but it is not one of carbon neutrality.
0	There is no stated goal for reduction of CO2 emissions.

Score explanation: In Dartmouth’s [2017 Sustainability Road Map](#), Dartmouth set a goal to “improve the efficiency of energy transmission and distribution systems by 20 percent by 2030 (relative to efficiency levels from 2010), obtain 50 percent of energy supply from renewable sources by 2025 and 100 percent by 2050, and reduce Scope 1 and 2 greenhouse gas emissions by 50 percent by 2025 and 80 percent by 2050 (relative to a 2010 emissions baseline)”. The plan to achieve these goals included steam to hot water conversion and a new power generation source. There is no goal that clearly states carbon neutrality. The town of Hanover, NH where Dartmouth is located has a [goal of 100% renewable energy by 2050](#).

3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital) utilize renewable energy?

3	Yes medical school buildings are 100% powered by renewable energy
2	Medical school buildings source >80% of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source >20% of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.

Score explanation: According to the Sustainability Office, about 13% of their electricity is coming from renewables. Approximately 3% of their consumption is generated on campus from rooftop solar. This only pertains to the medical school buildings on campus. Medical school facilities at the hospital use a different energy supply. 10% of the energy at the hospital is produced from a solar array through Norwich Solar Technologies.

4. Are sustainable building practices utilized for new and old buildings on the medical school campus, with design and construction of new buildings and remodeling of old buildings conforming to a published rating system or sustainable building code/guideline?

3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the majority of old buildings have been retrofitted to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have not been retrofitted.
1	Sustainable building practices are inadequately or incompletely implemented for new buildings.
0	Sustainability is not considered in the construction of new buildings.

Score explanation: Dartmouth adheres to the National Green Building Standard for all buildings on the Dartmouth campus. New buildings are constructed following these guidelines, and old buildings are updated or are currently being retrofitted to meet Dartmouth’s energy goals.

5. Has the medical school implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?

2	Yes, the medical school has implemented strategies to encourage and provide environmentally-friendly transportation options such as safe active transport, public transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school has implemented some strategies to provide environmentally-friendly transportation options, but the options are unsatisfactorily accessible or advertised.
0	The medical school has not implemented strategies to encourage and provide environmentally-friendly transportation options.

Score explanation: The medical school has not specifically implemented environmentally-friendly transportation options.

6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?

2	Yes, the medical school has both compost and recycling programs accessible to students and faculty.
1	The medical school has either recycling or compost programs accessible to students and faculty, but not both.
0	There is no compost or recycling program at the medical school.

Score explanation: The medical school has a recycling program through the college. However, composting/ organic recycling is not accessible.

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections?

3	Yes, the medical school has adequate sustainability requirements for food and beverages and is engaged in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are insufficient or optional. The medical school is engaged in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are insufficient or optional. The medical school is not engaged in efforts to increase food and beverage sustainability.
0	There are no sustainability guidelines for food and beverages.

Score explanation: The medical school does not have any food and beverage sustainability guidelines.

8. Does the medical school or associated institution apply sustainability criteria when making decisions about supply procurement?

3	Yes, the medical school has adequate sustainability requirements for supply procurement and is engaged in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are insufficient or optional. The medical school is engaged in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are insufficient or optional. The medical school is not engaged in efforts to increase sustainability of procurement.
0	There are no sustainability guidelines for supply procurement.

Score explanation: Geisel does not have supply procurement sustainability guidelines.

9. Are there sustainability requirements or guidelines for events hosted at the medical school?

2	Every event hosted at the medical school must abide by sustainability criteria.
1	The medical school strongly recommends or incentivizes sustainability measures, but they are not required.
0	There are no sustainability guidelines for medical school events.

Score explanation: No such guidelines exist at Dartmouth. Any sustainability initiatives at events are student led.

10. Does your medical school have programs and initiatives to assist with making lab spaces more environmentally sustainable?

2	Yes, the medical school has programs and initiatives to assist with making lab spaces more environmentally sustainable.
1	There are guidelines on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are no efforts at the medical school to make lab spaces more sustainable.

Score explanation: Dartmouth does have an [Environmental Health and Safety department](#) that has an environmental focus. It is primarily focused on laboratory chemical waste management. In that sense, this department provides feedback on how to help labs be more environmentally friendly. The

guidelines are not clearly noted anywhere, however. A representative from EHS is willing to have these types of discussions with laboratory personnel if sought out.

11. Does your institution’s endowment portfolio investments include fossil-fuel companies?

4	The institution is entirely divested from fossil fuels and has made a commitment to reinvest divested funds into renewable energy companies or renewable energy campus initiatives.
3	No, the institution is entirely divested from fossil fuels.
2	The institution has partially divested from fossil-fuel companies.
1	The institution has not divested from fossil-fuel companies, but faculty and/or students are conducting organized advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.

Score explanation: According to the Sustainability Office, “Dartmouth has not divested. While we have no direct investments in coal and very very few in fossil fuel, it is possible that portions of funds managed by external entities are invested in these asset classes.” There is an undergraduate group called [Divest Dartmouth](#) that is working to encourage Dartmouth to divest.

Section Total (9 out of 29)

D

Grading

Section Overview

This section focuses on the grading of the report card. The institution received a grade for each of the individual sections as well as an overall institutional grade. Section point totals were tallied, divided by the total points available for the section, and converted to a percentage. The overall institutional grade is a weighted average of the section grades, with curriculum receiving a higher weight owing to its larger number of metrics. Letter grades for each section and the institution overall were then assigned according to the table below.

Letter Grade	Percentage
A	80% - 100%
B	60% - 79%
C	40% - 59%
D	20% - 39%
F	0% - 19%

Planetary Health Grades for the Geisel School of Medicine at Dartmouth

The following table presents the individual section grades and overall institutional grade for the Geisel School of Medicine at Dartmouth on this medical-school-specific Planetary Health Report Card.

Section	Raw Score	Grade
Planetary Health Curriculum (30%)	12 / 58 = 21%	D-
Interdisciplinary Research (17.5%)	7 / 19 = 37%	D+
Community Outreach and Advocacy (17.5%)	2 / 14 = 14%	F
Support for Student-led Planetary Health Initiatives (17.5%)	12 / 15 = 80%	A-
Campus Sustainability (17.5%)	9 / 29 = 31%	D
Institutional Grade	35%	D