Planetary Health Report Card:

Boston University School of Medicine

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2021-2022 Contributing Team:
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Summary of Findings

Overall	C+

Curriculum	D

- The Boston University School of Medicine (BUSM) Planetary Health Curriculum contains sessions on impacts of environmental health on patients in the setting of asthma and other cardiopulmonary illnesses. The School of Public Health, which is located on the BU Medical Campus, has a robust offering of environmental health and sustainability courses.
- **Recommendation**: In addition to further integration and the addressing of areas not yet covered such as the disproportionate impact on marginalized communities and the psychological effects of climate change, it is hoped that the medical school can better collaborate with the school of public health to offer relevant electives.

Interdisciplinary Research	B+

- Boston University School of Public Health, who works in tandem with BUSM, makes a significant effort to promote interdisciplinary research for planetary health. They have a dedicated program for population health research focusing on climate and health and frequent symposia regarding topics in planetary health.
- **Recommendation**: Specific areas of improvement include the process of community input into the research agenda and communication with the larger university's Office of Sustainability to centralize resources related to health and environment in a medical-school specific context. Additionally, the medical school should consider joining the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education.

Community Outreach and Advocacy	D+

- Boston University has some connection with sustainability organizations in the community.
- **Recommendations**: BUSM can leverage their community based environmental partnerships to support student engagement. Because of its vast community network and partnering healthcare locations, it is thought that bringing in local groups working on planetary health initiatives would be well received by students and promote improved knowledge of said initiatives.

Support for Student-Led Initiatives	A

- The medical school is supportive of student-led initiatives and are enthusiastic and engaged in helping develop improved content around planetary health. Student groups seeking funding for their activities or research have appropriate avenues to do so. The creation of a Medical Campus Sustainability Intern role has further strengthened partnerships between the medical campus and the BU Office of Sustainability this year.

Campus Sustainability	B+

- Sustainability is a main area of focus for Boston University, which has a robust Climate Action Plan with goals to be carbon neutral for our operations by 2040. There is a strong sustainability team within the University who work to coordinate different aspects of sustainability. Major successes of the past year have included a commitment to divest from fossil fuels and new procurement guidelines that focus on sustainable purchasing.
- **Recommendations**: BU can continue to create, implement and enforce guidelines for sustainability for our student groups and food vendors on campus to reduce associated catering and event waste.

Statement of Purpose

Planetary health is human health.

The Planetary Health Alliance describes planetary health as "a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth." 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 nationally and internationally 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.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the *Planetary Health Alliance* as "a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth." For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional 'environmental health' examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term "planetary health" to satisfy the metric.

- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:

    1. Describe how the environment and human health interact at different levels.

    2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.

    3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.

- **Medical School vs. Institution:** When "medical school" is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (for example, undergraduate departments (USA), other related departments eg Public Health, Population Health departments). In contrast, when "institution" is specified in the report card, we are referring to the university more broadly. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric 19 in curriculum section):** This is a series of questions

providers are taught to ask during medical encounters that elicits patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and mold after flooding. Key components include place of residence over the lifecourse, occupational history, food and water sources (e.g. meat from industrial feeding operations, regular fishing in contaminated water, access to clean drinking water), and exposure to air pollution.

- **Elective:** The word "elective" refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.

- **Clerkship:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations or placements.

Added to our resources this year, the Planetary Health Report Card Literature Review by Metric collates the evidence behind each of the metrics in the Planetary Health Report Card. It serves as a collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

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 and other environmental changes. Therefore, it is critical that medical students are trained to understand the health effects of these changes, as well as planetary health issues and principles 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 (student selected modules) 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: While the School of Public Health on the medical campus offers electives and tracks focused on Planetary Health, a score of 0 is assigned because medical school students do not have access to any elective course on this topic.	

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme heat, health risks, 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: One dedicated lecture regarding environmental health was presented in the course "Essentials of Public Health" to first-year medical students. In that lecture, one learning objective aimed to "discuss climate change and the potential impacts on human health."

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: One dedicated lecture regarding environmental health was presented in the course "Essentials of Public Health" to first-year students. One component of the lecture focused on extreme weather days and their impacts on individual health as well as emergency preparedness and response.

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: Upon reviewing the second year course content, a brief mention on the climate-related life cycle of certain parasites was found in the Infectious Disease module. However, this did not cover the larger impact of climate change and its impact on infectious disease patterns.

5. Does your medical school curriculum address the respiratory health effects of climate change and 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: First year students in the course "Essentials of Public Health" attend a dedicated mandatory case-based learning activity addressing asthma and community health. The root causes of asthma were discussed, including "the role of socioeconomic, environmental, cultural, and other population-level determinants of health on the health status and health care of individuals with asthma."

6. Does your medical school curriculum address the cardiovascular health effects of climate change, including increased heat?	
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: The cardiovascular impacts of stress and environmental risk factors were covered briefly alongside the respiratory impacts of air pollution in the Essentials of Public Health course.	

7. 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: After reviewing the learning objectives and course content for the first and second year courses, this topic was not covered. It was also not found to be covered in any current electives.	

8. 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: Upon reviewing the public health course curriculum for medical students, we identified a lecture addressing food insecurity. Though topics on agricultural policy were discussed, the relationship between food/water insecurity and ecosystem health was not addressed.

9. 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, Indigenous communities, 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: A first year student elective course "CLEAR" (Creating Leadership and Education to Address Racism) hosts extended dialogues around racism and the lived environment which has included the outsized impacts of climate change on communities of color.	

10. Does your medical school curriculum address the unequal regional 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: A score of 0 is assigned since this topic was not found in a review of the curriculum, nor was it covered by student led elective groups. However, this topic is covered in depth through various electives at the School of Public Health and the Global Health Elective for preclinical students has expressed interest in incorporating this topic into their course for future years.	

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

11. 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: Core curriculum in embryology, reproductive, and OB-GYN and pediatrics clerkship rotation courses include content on pesticides and other teratogens, but lack holistic content around pollution and impacts of climate change specifically on health.

12. 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: During the first year Essentials of Public Health course, students were assigned to one of BUMC's adjoining neighborhoods to research their environmental strengths and potential needs from a public health perspective. This was followed by case-based discussions on asthma and several other community health concerns based on the students' own group research.

13. To what extent does your medical school emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?

3	Indigenous knowledge and value systems are integrated throughout the medical school's planetary health education
2	Indigenous knowledge and value systems as essential components of planetary health solutions are included briefly in the core curriculum.
1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in elective coursework.
0	**This topic was not covered.**

Score explanation: Health of indigenous communities is minimally covered within the core curriculum as a whole.

14. 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, Indigenous 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: The outsized health impacts of anthropogenic environmental toxins on children and older adults are discussed in core curriculum, but the curriculum does not address the outsized impact of these factors on other marginalized populations including homeless populations, those with low SES, and communities of color.	

Curriculum: Sustainability

15. 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: Upon review of the course material, the health benefits of plant based diets were briefly mentioned in the GI/nutrition course during M1.	

16. Does your medical school curriculum address the carbon footprint of 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: Upon review of course content, this topic is not addressed in the core curriculum or electives.	

17. Does your medical school curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (1 point each)

1	Waste production within the healthcare system and strategies for reducing waste in clinical activities, such as in the operating room
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally anaesthetic gas options with reduced greenhouse gas emissions
1	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively teaching on deprescribing where possible and its environmental and health co-benefits would fulfill this metric.
1	The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes for obesity. This is commonly known as social prescribing in the UK.
1	The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment
Score explanation: While the benefits to the individual of non-pharmaceutical management strategies have been discussed, this was in the setting of health outcomes and cost and not with regards to environmental benefit or risk of climate health harm.	

Curriculum: Clinical Applications

18. 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: These strategies are not addressed in the core curriculum.	

19. 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: Medical students discuss environmental history taking as part of our environmental health lectures as well as in a case-based discussion about "the role of socioeconomic, environmental, cultural, and other population-level determinants of health on the health status and health care of individuals with asthma." In addition, the longitudinal "Doctoring" course includes occasional case-based exposure histories as part of an initial HPI assessment.	

Curriculum: Administrative Support for Planetary Health

20. Is your medical school currently in the process of implementing or 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.**
Score explanation: No concerted efforts to make improvements to the ESH / planetary health education programs were identified. However, after reviewing the course content and learning objectives between 2018 and 2022, it is clear that a few small changes have been made within the course content to include more planetary health topics. In addition, BUSM is anticipating a curriculum overhaul to begin with the class of 2026 that may include improvements to the ESH curriculum, but the new content has not yet been released.	

21. 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.

Score explanation: During the Essentials of Public Health course, there was a standalone lecture addressing Environmental Health in addition to the case-based discussion about asthma that represent the majority of the environmental health content.

22. Does your medical school employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the course?	
1	Yes, the medical school has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	**No, the medical school does not have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.**
Score explanation: No accountable individual has been identified.	

Section Total (22 out of 69)	**D**

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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?	
3	**Yes, there are faculty members at the School of Medicine who have a primary research focus in 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.
Score explanation: The School of Public Health on the Medical Campus includes several staff members focused primarily on environmental health. There are currently 4-5 major ongoing projects in this space, and medical students have the opportunity to seek research mentors in this space. *Research Areas | SPH* *MS in Climate & Health | SPH*	

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.

Score explanation: The School of Public Health on the Medical Campus includes a department specifically dedicated to environmental health.

Environmental Health | SPH
Research | Program on Climate & Health

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.

Score explanation: The School of Public Health Climate Research Team includes "community participatory research to build resilience to extreme heat in Boston area communities;" more about this project can be found at:

Research | Program on Climate & Health

4. Does your institution have a planetary health website that centralizes ongoing and past research 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.

Score explanation: The Boston University Institution has a comprehensive Office of Sustainability website that includes information about sustainability resources on both the undergraduate and medical campuses, but there is not a site specific to the medical school. It includes opportunities for internships, events, and funding that are available to both undergraduate and graduate students but are not specific to the medical campus. Note: A Comprehensive Medical Campus Institutional Master Plan

was submitted to the Boston Planning and Development Agency, but is not easily accessed via any medical student web platforms. *BU Sustainability* *Boston University Medical Campus Institutional Master Plan*

5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the **medical school** has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the **institution** has hosted at least 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.
Score explanation: The Institution hosted "Arctic Worlds: A Symposium of the Environment and Humanities" in January of 2020. *Arctic Worlds: A Symposium on the Environment and Humanities*	

6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health or ESH organization
0	**No, the medical school is not a member of such an organization**
Score explanation: The School of Public Health has joined the Global Consortium on Climate and Health Education, but the Medical School has not joined any national or international organization.	

Section Total (13 out of 17)	**B+**

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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.

Score explanation: Sections 6.5 - 6.7 of the Medical Campus Institutional Master Plan documents partnerships with the green ribbon commission, zero waste boston, and carbon free boston. These are all hosted through Boston University as an overarching institution, but the medical campus is part of the partnerships.

"Boston University has been a member and supporter of the City of Boston's Green Ribbon Commission since its inception. President Brown sits on the Green Ribbon Commission and the Carbon Free Boston Working Group. The University is also actively participating in the Commission's Higher Ed Working Group, a collaborative body of Boston area academic institutions convening around emerging and best practices on energy efficiency, large scale renewables procurement, climate preparedness, green labs, etc.

Boston University's Institute for Sustainable Energy developed the process and implemented the analysis and reporting for Carbon Free Boston to help the City understand the policies and programs that need to be put in place if the City is going to meet its goal to be carbon free by 2050.

The University participated in the City of Boston's Zero Waste Advisory Committee to make recommendations for nineteen Zero Waste options for implementation in the short-, medium- and long-term."

Boston University Medical Campus Institutional Master Plan

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.**
Score explanation: There have been no community-facing courses or events on planetary health in the past year.	

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: Students receive regular communications from "Sustainability@BU" with institution-wide updates on upcoming events and opportunities that include the medical campus.	

4. Does the institution or main affiliated hospital trust engage in professional education activities targeting individuals post graduation with the aim of ensuring their knowledge and skills in planetary health and sustainable healthcare remain up to date during their professional career?	
2	Yes, the institution or main affiliated hospital trust offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the institution or main affiliated hospital trust offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	**There are no such accessible courses for post-graduate providers**

Score explanation: No CME or other post-graduate educational opportunities around planetary health or sustainability were found.

5. Does your medical school or its primary affiliated hospital 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.**
Score explanation: No educational material for patients have been identified at Boston Medical Center or any affiliated locations.	

6. Does your medical school or its primary affiliated hospital 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.**
Score explanation: Score explanation: No educational material for patients have been identified at Boston Medical Center or any affiliated locations.	

Section Total (5 out of 14)	**D+**

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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/QI project?	
2	**Yes, the institution *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum.**
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 and there is no requirement to participate.
0	No, the institution does not offer opportunities or support for sustainability initiatives or QI projects.
Score explanation: Avenues exist for students to access grants for various initiatives through the larger institution's Campus Climate Lab. In addition, student groups like the Climate Action Group are eligible for funding to enact various sustainability initiatives, including a fall 2021 cleanup event of the Medical Campus surrounding community. *Campus Climate Lab | Urban Climate Initiative*	

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	**The institution has a specific research program or fellowship for students interested in doing planetary health/sustainable healthcare research.**
1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare but these require student initiative to seek these out and carry them out in their spare time.
0	There are no opportunities for students to engage in planetary health/sustainable healthcare research.
Score explanation: Medical students can apply specifically for summer funding for a research project in any BUMC healthcare setting through their MSSRP program. While not specific to healthcare sustainability, the scope of the research topics is not limited. Students can also fund research initiatives via the Campus Climate Lab.	

Campus Climate Lab | Urban Climate Initiative *Medical Student Summer Research Program | School of Medicine*

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: The School of Public Health, who works in tandem with the School of Medicine, has a centralized webpage for students to connect with faculty mentors around this topic; however, the medical school on its own does not. Students are encouraged to perform interdisciplinary research activities with the students and faculty at School of Public Health. *Research | SPH*	

4. Does your medical school have 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 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.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.
Score explanation: The Medical Campus hosts the Climate Action Group, where students from programs across the medical campus receive funding and faculty support to advance advocacy and planetary health engagement on campus. *Climate Action Group | School of Medicine*	

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?	
1	**Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.**
0	No, there is no such student representative.
Score explanation: The BU Office of Sustainability has recently hired a Sustainability Intern to serve the specific sustainability needs of the Medical Campus. Their role focuses on community building and sharing information on sustainability and BU's Zero Waste Plan, as well as reporting on the needs of the medical campus to improve the services offered by the overarching BU Sustainability department. *Meet BUMC Engagement Intern Candace Smith (MED' 24) | Sustainability*	

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)**
Score explanation: - *BUSM has recently launched a student run garden outside the Medical Student Residence building. Second-Year Students Plant MSR Garden | School of Medicine* - *The Climate Action Group hosts speaker events each year focused on a variety of environmental topics, including raising awareness of BU's Climate Action Plan and Zero Waste Plans. Some of these events host speakers from local environmental justice leaders and highlight opportunities for partnership with these organizations. In addition, the School of Public Health hosts a number of seminar programs for students focused on sustainability and climate change.*	

- *BUSM hosts an annual cultural show, where students can share elements of their culture related to planetary health.*
- *BUSM supports a Wilderness Medicine student group that follows Leave No Trace principles.*

Section Total (13 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
Score explanation: The institutional supports many full time staff at sustainability @ BU. While the team serves the entire institution, a student sustainability intern is dedicated to the medical campus. *BU Sustainability team::* *Faculty & Staff | Sustainability* *BUMC Student intern:* *Meet BUMC Engagement Intern Candace Smith (MED' 24) | Sustainability*	

2. How ambitious is your medical school/institution's plan to reduce its own carbon footprint?	
4	The institution has a stated goal of carbon neutrality by 2030 or earlier and the medical school / institution has a well-defined and adequate plan in place to achieve this goal.
3	**Yes, there is a stated carbon neutrality goal by at least 2040 and the medical school/institution has a well-defined and adequate plan in place to achieve this goal.**
2	Yes, there is a stated carbon neutrality goal by at least 2040, but the medical school/institution 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: BU has a robust climate action plan, which aims for carbon neutrality by 2040. BUSM Specific Goals are to:
➢ *Reduce building energy use 31% by 2032, including growth,*
➢ *Match 100% of electrical demand with renewables (held as RECs) beginning in 2020 through a power purchase agreement for wind power in South Dakota (the project is now under construction),*
➢ *Shift to fossil fuel free heating and cooling.*

The Climate Action Plan has also supported the recent launch of the BU Zero Waste Plan, which outlines 21 different initiatives that focus on various important aspects of Zero Waste: redesign, reduce, reuse, recycle/compost, culture change, and market development.

Medical Campus: See section 6.1 Boston University Medical Campus Institutional Master Plan

BU overall Plan: Sustainability | Boston Medical Center

Climate Action Plan recommendations: Climate Action Plan | Sustainability

BU Zero Waste Plan: Zero Waste Plan | Sustainability

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: At this time, 100% of the BU energy needs are met with renewable RECs via a South Dakota windfarm. BU purchases electricity from 48.6 MW of wind generation capacity annually through a 15-year Power Purchase Agreement (PPA) with ENGIE North America. Annually, the associated 205,000 Green-e Certified RECs are enough to meet the energy requirements of both the main BU campus and the medical campus.

BU Wind | Sustainability

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 sustainability rating system or 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: While BU has committed to pursuing LEED Gold certifications for all new construction as part of their Climate Action Plan, most older buildings on the Medical Campus have not been significantly retrofitted. Some newer buildings achieving LEED Gold certification on the medical campus include the Medical Campus Residence building, the recently renovated Goldman school of Dental Medicine building. Another bioresearch building has been LEED Certified but did not achieve Gold or Silver specifications. These three buildings represent a small proportion of the medical campus.

LEED Certified Projects | Sustainability

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: Score explanation: BU encourages public transit usage, shuttles, biking, and walkability. See sections 6.2.1 and 5.8.
Boston University Medical Campus Institutional Master Plan

In addition, the BUSM website utilizes public transit and campus shuttle directions as preferred due to limited campus parking. Visit Us | School of Medicine

As part of the University's Climate Action Plan, campus shuttles are expected to become fully electric and have already begun a pilot transition program. Net Zero Direct Emissions | Sustainability

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: A compost program has been newly launched at the medical student residence. Recycling programs are in place currently and the BU sustainability website shows recycling locations for a variety of materials from plastics to lithium batteries. Current initiatives are underway to expand composting opportunities outside the medical student residence, but composting programs also exist in various SPH departments and labs.

Recycle | Sustainability
Food Waste Diversion in a Residence Hall? | Sustainability

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has adequate sustainability requirements for food and beverages, including meat-free days or no red-meat, 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: New basic guidelines for food and beverage selections have been issued to student groups hosting events on the medical campus. While the BU undergraduate campus is making significant efforts to improve sustainability of their catering services, this is not the case on the medical campus where student groups manage smaller scale food/beverage selections.

12.29.21 Update for SCOMSA distribution Creating More Sustainable Events on BUMC (1).docx

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: In 2021, BU has launched their Sustainable purchasing program. When a competitive RFP is issued, a minimum of 15% of the available points of the selection criteria on the supplier scorecard shall be allotted to sustainability. Factors that may be considered include, but are not limited to, environmental preference, human health implications, or social equity business practices. It includes Required Minimums, which are the basic sustainability certifications and practices required for the University to consider purchasing a product. Preferred Standards are additional considerations that represent a higher level of sustainability but may be more difficult to achieve. While this initiative is common to the entire institution, medical campus procurement falls under these same guidelines.

https://www.bu.edu/sourcing/files/2021/11/Sustainable-Purchasing-Program-v1.0.pdf

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: New basic guidelines for food and beverage selections have been issued to student groups hosting events on the medical campus. While the BU undergraduate campus is making significant efforts to improve sustainability of their catering services, this is not the case on the medical campus where student groups manage smaller scale food/beverage selections for their events.

12.29.21 Update for SCOMSA distribution Creating More Sustainable Events on BUMC (1).docx

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: The BU Environmental management division has issued guidelines and regulations that include minimizing waste production and pollution - there is a pollution prevention initiative with additional guidelines.The Climate Action Plan Campus Wide Programs includes the recommendation of a Green and Safe Labs Program.

Climate Action Plan | Sustainability (Page 3)

Pollution Prevention | Environmental Health & Safety

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 or has made a commitment to fully divest, but currently still has fossil fuel investments.**
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: In September of 2021, BU made a commitment to divest from fossil fuels after nearly a decade of student and faculty activism. While the institution committed to "begin immediately" in their divestment, it is assumed that this transition is still underway.

"Going forward, BU will phase out any investments in companies that extract oil and natural gas. The University's endowment, more than $3 billion, will not have any direct investments in fossil fuel companies. ***Instead, investing in support of fossil fuel–free energy production will be a priority.****"*

Boston University to Divest from Fossil Fuel Industry | BU Today

Section Total (24 out of 31)	**B+**

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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%

**Within each grade bracket, a score in the top 5% (_5 to_9%), receives a "+", and a score in the bottom 5% (_0-_4%) receives a "--". For example, a percentage score of 78% would be a B+.*

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

Section	Raw Score	Letter Grade
Planetary Health Curriculum (30%)	(22 / 69) x 100 = 31.88%	D
Interdisciplinary Research (17.5%)	(13 / 17) x 100 = 76.47%	B+
Community Outreach and Advocacy (17.5%)	(5 / 14) x 100 = 35.71%	D+
Support for Student-led Planetary Health Initiatives (17.5%)	(13 / 15) x 100= 86.67%	A
Campus Sustainability (17.5%)	(24 / 31) x 100 = 77.42%	B+
Institutional Grade	**57.91%**	**C+**

Report Card Trends

Section Overview
This graph demonstrates trends in overall and section grades for the years in which Boston University School of Medicine has participated in the Planetary Health Report Card initiative.