Planetary Health Report Card (Medicine):

University of Maryland School of Medicine

2024-2025 Contributing Team:

- Students: Sahani DSouza, Kathryn Driscoll, Haoran Li, Matthew DiNola
- Faculty Mentors: Dr. Snehal Patel, Dr. Marianne Cloeren

*Primary Contact: Matthew DiNola, matthew.dinola@som.umaryland.edu

Land acknowledgment: We humbly acknowledge our school's presence on the unceded lands of the Piscataway and Susquehannock peoples.

Summary of Findings

Overall Grade	C

Curriculum	B

- The University of Maryland School of Medicine (UMSOM) continues to provide education on the intersection between climate change and human health.. Additionally, UMSOM has been working on an environmental clerkship that will be available to medical students in 2025. UMSOM has two faculty members devoted to environmental education within our curriculum instead of one. UMSOM has improved on integration of planetary health material in the 1st and 2nd year curriculums as well.
- **Recommendations:** Continue to prioritize and build the planetary health education into the preclerkship curriculum by integrating climate change in relevant subjects throughout each course block. Curriculum heads should use the Planetary Health Report Card to make sure their coverage of environmental health issues is thorough.

Interdisciplinary Research	C-

- UMSOM lacks significant planetary health research, with minimal institutional research grant support, and no planetary health research department or website. The Office of Sustainability has cultivated ample resources which is an improvement relative to previous report cards.
- **Recommendations**: Create a centralized website dedicated to planetary health, where relevant faculty researchers and environmental health publications are collected and easy to find. Prioritize environmental health research in grant funding and partner with other institutions to identify and address research needs. Join the Global Consortium on Climate and Health Education.

Community Outreach and Advocacy	C-

- Integration of 4MyCity and Baltimore Tree Trust into service learning options for preclerkship students and the institution's Office of Sustainability providing community-facing programming for residents of West Baltimore has greatly improved our community outreach.
- **Recommendations**: Continue to build a relationship with the Baltimore city community by providing educational materials or events on climate change and its health impacts.

Support for Student-Led Initiatives	C

- UMSOM does not actively promote environmental health research or offer funding specifically for sustainability-focused projects. There is no School of Medicine-led initiative or centralized resource dedicated to promoting planetary health.
- **Recommendations:** Host an Environmental Health Research roundtable. Expand funding and opportunities for students to create and implement sustainability efforts in the campus community. Create a centralized website for students interested in pursuing planetary health-focused projects and initiatives. Collaborate with the School of Social Work's organization ECO to collaborate with local communities in Baltimore.

Campus Sustainability	C

- The UMB Office of Sustainability facilitates sustainability projects and is committed to energy efficiency and waste reduction on campus. The University of Maryland as an institution continues to use steam and fossil fuels as a source of electricity.
- **Recommendations**: Continued funding towards and collaboration with the Office of Sustainability is necessary to improve energy efficiency. Explore opportunities to minimize use of cars for 3rd and 4th year students. Continue furthering fossil fuel divestment with increased renewable energy resources.

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 analysing 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, urbanisation, 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 health professional 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 health professional training. It is imperative that we hold our institutions accountable for educating health professional 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 colour, 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 health professional schools, we have created a Planetary Health Report Card that students internationally can use to grade and compare their institutions on an annual basis. This student-driven initiative aims to compare health professional 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 centred on environmental health impacts and 5) school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as "the health of human civilisation and the state of the natural systems on which it depends." 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 health professional 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.

- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.

- **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/Department vs. Institution:** When "Medical school" is specified in the report card, this only refers to curriculum and resources offered by the School/department of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when "institution" is specified in the report card, we are referring to the university more broadly including all of its campuses. 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 students 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 mould 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. Please be as specific as possible when providing evidence for this metric.

- **Elective:** The word "elective" refers to an optional course or lecture series that a 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.

- **Core Curriculum:** This refers to taught material that is delivered to the entire cohort of students in one year.

- **Clerkship / Outreach:** 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, outreach or placements. This is a relatively short (approximately 4-8 weeks) period of study and patient-centred clinical experience that takes place as part of the undergraduate programme.

- **Clinical rotation:** This is a term used to refer to placements that students go on (e.g., ophthalmology, surgery, cardiology).

- **Physiotherapy vs Physical Therapy:** For the purposes of this report card these terms are considered interchangeable. However, physiotherapy will be used primarily.

- **Community organisations:** For most institutions, there are existing groups that are not directly affiliated with the university and exist as a product of what the community the institution exists in cares about or needs. These specific community organisations relevant to this report include those that are focused around some aspect of climate and health preservation. These community organisations can include but are not limited to local mutual aid initiatives, underserved-resource distribution groups, clean-up and nature conservation groups, community gardeners, and other environmental-related organisations. If your institution does not have access to local volunteerships with community groups, please report any community organisations your institution or school has collaborated with.

- **Climate justice:** The idea that certain population groups and geographical locations which are disproportionately more impacted by climate change are already economically and socially disadvantaged. This double vulnerability sits alongside pre-existing social justice concerns and should therefore shift policy and practice to mitigate the inequitable effects of the climate crisis.

- **Extractivisim:** The removal of natural resources typically in large quantities. Within anthropology this term is often used in the context of colonialism to refer to

the historic seizing of natural resources, a practice which has developed business models tied to ecological degradation and loss of biodiversity.

- **Global South:** Nations that often have less economic and industrial development and are typically in the southern hemisphere. These nations have been found to be disproportionately impacted by the climate crisis.

- **Low socioeconomic status (SES):** An individual or geographical area that across a variety of socioeconomic factors (e.g., income, education, race/ethnicity) is considered vulnerable. This vulnerability has been correlated to more adverse health outcomes often as a consequence of encountering more barriers in accessing and receiving healthcare.

- **Low and Middle-Income Countries (LMIC):** Countries that have lower degrees of economic affluence.

- **Anthropogenic:** Created through human activity

- **Marginalized communities:** Groups excluded from mainstream economic, educational, social, and/or cultural experiences due to race, gender identity, sexual orientation, age, physical ability, language, and/or immigration status (Sevelius et al., 2020).

Other considerations:

- If there are more than one "tracks" at your institution with two different curricula (for example, Harvard Medical School has a Pathways and HST curriculum track), you can choose to fill out a report card for each track, or fill out just one report card and average the scores received by each track in cases where the scores are different (see the 2021 Harvard or Oxford report cards as examples). Where possible please indicate the proportion of students that are on each track.

Completed in 2022 a Literature Review by Metric is available for the 2022 medicine report card metrics. We are in the process of updating this review and making it more applicable to all the disciplines. However the review serves as a rough 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

1.1. 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?	
Yes, the medical school has offered **more than one** elective whose primary focus is ESH/planetary health in the past year. (3 points)	
Yes, the medical school has offered **one** elective whose primary focus is ESH/planetary health in the past year. (2 points)	
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. (1 points)	
No, the medical school has **not** offered any electives on planetary health or electives that include ESH/planetary health topics in the past year. (0 points)	
Score Assigned:	3
Score explanation: *UMSOM currently has two electives focused on Planetary Health that can be taken by third or fourth year medical students. "CIPP650: Climate Change, Health, and Society: An Interprofessional Elective" focuses on the impact of climate change on the health of Maryland and Baltimore residents, while exploring ways to address these challenges via legal policy changes and community-based initiatives (made available in 2023). "AMED542: The Climate Crisis and Patient Health" integrates clinical and community field site experience as well as didactic material on ways for students to engage in planetary health during their medical careers. Clinical and field sites include the Pediatric Asthma Clinic and the Baltimore City Office of Sustainability. AMED542 strives to build on concepts previously discussed longitudinally in the pre-clerkship curriculum (made available in 2024).*	

Curriculum: Health Effects of Climate Change

1.2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?
This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3
Score explanation: *In the Cardiology block, there was a lecture on the impact of rising temperatures on the increased prevalence of heat stroke, connecting these factors to a recent case of a Baltimore resident who died while working outside in the extreme heat. A Practice of Medicine lecture titled "Practicing Medicine in a Climate Crisis", a case study was presented on how to identify heat-related medical conditions and its relationship to climate change. Heat stroke and how it related to climate change was tested in our "Practice of Medicine" portion of examinations.*	

1.3. Does your <u>medical school</u> curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3
Score explanation: *In the pulmonary block of the second year curriculum, air pollution and asthma are connected to extreme weather events. The lecture states that increased flooding and weather events can increase levels of domestic mold which will increase the rates of asthma morbidity due to respiratory epithelial injury. Additionally, in the Nephrology section of the second year curriculum, climate change is cited as being a reason for the "kidney stone risk belt" moving north. It cites increasing temperatures as a reason for this shift. These topics were broadly discussed in the "Practicing Medicine in a Climate Crisis" core lecture. The Psychiatry block had a small group session where the impacts of natural disasters on mental health are explored, and a physician from New Orleans spoke of their experience with PTSD following the events of Hurricane Katrina. A Practice of Medicine lecture titled "Practicing Medicine in a Climate Crisis" presented an infographic from the CDC on climate change and human health, which showed the impact of environmental factors such as severe weather, extreme heat, environmental degradation, water/food supply impacts, water quality impacts, increasing allergens, changes in vector ecology, and air pollution have on the healthcare system.*	

1.4. Does your <u>medical school</u> curriculum address the impact of climate change on the changing patterns of infectious diseases?
This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3
Score explanation: *In the lecture "Practicing Medicine in a Climate Crisis" for the Practice of Medicine course, recent trends in increasing incidence of Lyme disease in the winter months as well as concerning cases of Malaria (Plasmodium falciparum) in individuals with no travel history were attributed to rising global temperatures leading to atypical infectious etiologies. In the Brain and Behavior block, there is a single slide that cites climate change and the evolving host reservoir patterns as a major contributor to increased transmission of arboviruses. In a lecture on coronaviruses, the lecturer explained that climate change will continue to increase the zoonotic emergence of new viruses. In a skin and soft tissue infection lecture, climate change is cited as a risk factor for the increasing incidence of hand foot mouth disease. In the Practicing Medicine in a Climate Crisis lecture, reduced water quality and food insecurity as a result of climate change was connected back to the increasing prevalence of infectious diseases. These discussions took place in multiple separate lectures throughout the preclinical curriculum.*	

1.5. Does your <u>medical school</u> curriculum address the respiratory health effects of climate change and air pollution?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3
Score explanation: *In the "Practicing Medicine in a CLimate Crisis" lecture, a patient case was discussed on a young athlete with asthma and participation in outdoor activities on days with low air quality index, which is becoming a more pertinent issue due to climate change. The same session also discussed harmful environmental emissions and how resulting particulate matter exposure is especially concerning for those with chronic medical conditions such as cardiovascular disease and type 2 diabetes.* *The effects of air pollution on asthma prevalence and pathophysiology was discussed at length during a lecture on asthma, and students completed one question on air pollution-mediated asthma physiology on an individual readiness assessment (IRAT) prior to an asthma small group session.* *The effects of air pollution on cancer prevalence was briefly discussed during a lecture on management of patients with lung cancer.*	

In the Multisystems block of the medical school education, there is a mention of Baltimore City incinerator that leads to increased pollution and climate change in the city. The lecturer determined that this smoke stack increased the risk of asthma within specific places in Baltimore.

1.6. Does your <u>medical school</u> curriculum address the cardiovascular health effects of climate change, including increased heat	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3
Score explanation: *There is a dedicated lecture in the cardiology block titled "Climate Change and the Heart" that discusses the impact on extreme heat and air pollution on cardiovascular health. Topics discussed included the spectrum of heat stress including heat cramps, heat exhaution, heat stroke and how resultant cardiovasculat collapse can lead to death, increasing particulate matter from air pollution causing increased risk of thromboembolic events, hypertension, and cardiac arrythmias, and changes in cardiac vector (lyme disease, chagas disease) ecology from rising global temperatures. These topics are revisited later in a lecture titled "Practicing Medicine in a Climate Crisis." This was covered in one week of teaching.*	

1.7. Does your <u>medical school</u> curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	3
Score explanation: *In the Brain and Behavior block, air pollution is cited as a modifiable risk factor for Alzheimer's Disease. In a lecture titled "Practicing Medicine in a Climate Crisis", there is an informational graphic from the CDC which cites severe weather as a contributor to negative health impacts. This was discussed in the premise of how natural disasters contribute to the loss of housing and access to basic resources as well as increased levels of violence, which results in significant mental health burden among vulnerable populations. There was also a separate portion of group time devoted to discussing climate change and mental health in a lecture called "Climate and Mental Health." We*	

discussed certain non-DSM classifications of mental distress due to climate change such as "nature deficit disorder" and "eco-anxiety." We also heard from a personal account of "environmental grief" from a University of Maryland physician. Material from this group discussion was on our block test.

1.8. Does your <u>medical school</u> curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	2
Score explanation: *The Global Health track spoke on dwindling resources and downstream tensions from climate change in the lecture "Climate Change." This lecture focused on decreased food and water security, citing increasing tensions with Pakistan and surrounding neighbors due to water scarcity. The Occupational and Environmental Medicine elective also covered this topic in its Climate Change session, in which the impacts of food and water security and ecosystem degradation by climate change on migration and population dynamics were highlighted. In the "Extreme weather and ecological degradation" class for the Climate Change, Health, and Society elective, the heightened effects from climate change on resource-limited countries and the unequal contribution of higher-income nations are explored.*	

1.9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalised populations such as those with low SES, women, communities of colour, Indigenous communities, children, homeless populations, and older adults?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	2
Score explanation: *In the "Practicing Medicine in a Climate Crisis" lecture, the direct relationship between toxic air pollution levels and asthma hospitalization rates within Baltimore city was discussed. These statistics were shown to be inversely proportional to median household incomes, connecting the fact that those belonging to low SES are disproportionately affected by climate change. The lower*	

income levels were also shown to be related to higher minority population densities, indirectly connecting these categories back to the relationship between climate change and health risks.

1.10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	1
Score explanation: *The Global Health track continually intertwines climate change and global health through many of its lectures and presentations. Specifically, the lecture titled "Climate Change" focused on the disproportionate effect of climate events on countries and citizens of lower socioeconomic class, emphasizing examples such as Pakistan's 2023 floods. The importance of women and indigenous people's voices in the climate change sphere were discussed, including the push to increase the number of women advocates at the COP27 meeting and work of Barbados Prime Minister Mia Mottley on the loss and damage climate fund.*	

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

1.11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	1
Score explanation: This topic has been covered in multiple sessions of the Occupational and Environmental Medicine elective including the session on endocrine disruptors. Specifically mentioned were the reproductive toxins lead, cadmium, bisphenol A, industrial solvents such as toluene, and pesticides such as dibromochloropropane. A case-study was done on how a patient's PCOS diagnosis was potentially affected by the surrounding environmental conditions, including a metals processing plant.	

1.12. Does your <u>medical school</u> curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	2
Score explanation: *In a lecture titled "Health of Baltimore," ground and air toxins from Baltimore's Sparrow Point industrial plants were cited as a potential cause for Baltimore's increased cancer risk. Specific examples of lung cancer patients were provided to demonstrate the increased rates of cancer in those who worked at these plants. These concepts were further discussed in the lecture titled "Practicing Medicine in a Climate Crisis" where the overlap between toxic air pollution, asthma hospitalization rates, and median household income in Baltimore City were compared via side-by-side graphs. In the Multisystems block, Baltimore's smokestack was cited as producing environmental pollutants into Baltimore's air.*	

1.13. To what extent does your <u>medical school</u> emphasise the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	1
Score explanation: *In the Global Health track's "Climate Change" lecture, the importance of women and indigenous people's voices in the climate change sphere were discussed, including the push to increase the number of indigenous women advocates at the COP27 meeting, citing the need for more indigenous voices on the COP panel. Discussion included Indigenous women's protests at the COP26 meeting, emphasizing the need for female advocacy due to the increased violence towards women in tribes and countries where climate change has created tension.*	

1.14. Does your <u>medical school</u> curriculum address the outsized impact of anthropogenic environmental toxins on marginalised populations such as those with low SES, women, communities of colour, children, homeless populations, Indigenous populations, and older adults?

This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	2
Score explanation: *The "Practicing Medicine in a Climate Crisis" lecture presented graphical statistics of the strong inverse correlation socioeconomic status and asthma-related hospitalizations in the Baltimore community. The rate of asthma hospitalizations was again positively correlated with levels of toxic air pollution, showing the connections between communities of color, those with low SES, toxins from air pollution, and related health outcomes.*	

Curriculum: Sustainability

1.15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	0
Score explanation: *The core curriculum mentions Mediterranean diets and increasing dietary share of plant-based foods as health-positive behaviors but does not connect plant-based eating with broader positive impacts on environmental sustainability. Given the lack of elaboration on the environmental co-benefits of plant-based diets, 0 points was awarded for this section.*	

1.16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
This topic was explored **in depth** by the **core** curriculum. (3 points)	
This topic was **briefly** covered in the **core** curriculum. (2 points)	
This topic was covered in **elective** coursework. (1 point)	
This topic was **not** covered. (0 points)	
Score Assigned:	1

Score explanation: *This content was not covered in the core curriculum. In the Humanism symposium, the carbon footprint of the health sector was briefly covered in pre-work for the large group discussion on climate change and health. The SPARC2 tool is covered in the Global Health Track, which is used to reduce the carbon footprint of surgical providers. In the Occupational and Environmental Medicine track "Climate Change" class, articles and videos relating to the impact of the healthcare sector on the climate crisis and strategies for reducing healthcare waste were assigned as pre-work then discussed during class time.*

1.17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (points for each)	**Score**
The health **and** environmental **co-benefits** of **avoiding** over-medicalisation, over-investigation and/or over-treatment (2 points)	0
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 fulfil this metric. (2 points) .	2
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. This is commonly known as social prescribing in the UK. (1 point)	0
Environmental impact of **surgical** healthcare on planetary health and the climate crisis, and how can it be mitigated. (1 point)	0
The impact of **anaesthetic** gases on the healthcare carbon footprint and ways to reduce anaestheisa's environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions. (1 point)	1
The impact of **inhalers** on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers. (1 point)	0
Waste production within healthcare **clinics** and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting) (1 point)	0
Score explanation: *In the Blood and Host Defense block, overprescription of antibiotics is cited as a significant challenge to providers in the management of disease. The idea of a finite amount of antibiotics available for a growing amount of microbes connects health and the environment. This was talked about in lecture and in small group learning, especially based on production and changing biomes of bacteria.* *In an anesthesia lecture in the Brain and Behavior block, the environmental impact of volatile inhaled anesthetics was discussed as well as the importance of considering alternative modes of anaesthesia due to this reason.*	

Curriculum: Clinical Applications

1.18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?	
Yes, there are strategies introduced for having conversations with patients about climate change in the **core** curriculum. (2 points)	
Yes, there are strategies introduced for having conversations with patients about climate change in **elective** coursework. (1 points)	
No, there are **not** strategies introduced for having conversations with patients about climate change. (0 points)	
Score Assigned:	2
Score explanation: *In the lecture titled "Practicing Medicine in a Climate Crisis", there are two patient scenarios presented to explore protocols and recommendations for those affected by environmental conditions related to climate change. The first case explores a construction worker experiencing symptoms of a heat stroke, and ways to confirm and manage this diagnosis as well as strategies for counseling patients on ways to prevent future exacerbations. The second case explored a high-school student with asthma and how to approach her desire to participate in outdoor sports and the code-red air alerts for that week.* *Moreover, a clinical rotation is currently being developed on how to apply these strategies in practice by the faculty and students in the Climate Change, Health, and Society and Occupational and Environmental Health tracks.*	

1.19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies for taking an environmental history or exposure history?	
Yes, the **core** curriculum includes strategies for taking an environmental history. (2 points)	
Only **elective** coursework includes strategies for taking an environmental history. (1 point)	
No, the curriculum does **not** include strategies for taking an environmental history. (0 points)	
Score Assigned:	2
Score explanation: *The "Practicing Medicine in a Climate Crisis" lecture has two case studies, one on an outdoor worker with heat exhaustion and the other on the implications of a low air quality index for a young athlete with asthma participating in outdoor sports, that discusses pertinent questions in history taking that would aid in diagnosis and treatment plans.* *Students are taught strategies for gathering occupational and exposure histories in an occupational health lecture during Practice of Medicine II.*	

Curriculum: Administrative Support for Planetary Health

1.20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?

Yes, the medical school is currently in the process of making **major** improvements to ESH/planetary health education. (4 points)
Yes, the medical school is currently in the process of making **minor** improvements to ESH/planetary health education. (2 points)
No, there are **no** improvements to planetary health education in progress. (0 points)

Score Assigned:	4

Score explanation:
A new preclinical elective titled "Climate Change, Health, and Society" was established in January 2024. Additionally, a fourth-year elective named "The Climate Crisis and Patient Health" which focuses on local clinical work related to climate change such as working in an asthma clinic and the city office of sustainability is now available. The medical school is working on identifying more opportunities to integrate environmental education longitudinally through the pre-clerkship core curriculum.

1.21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> curriculum?
Planetary health/ESH topics are **well integrated** into the core medical school curriculum. (6 points)
Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum. (4 points)
Planetary health/ESH is not integrated and is primarily addressed in **(a) standalone lecture(s).** (2 points)
There is **minimal/no** education for sustainable healthcare. (0 points)

Score Assigned:	4

Score explanation:
"Practicing Medicine in a Climate Crisis" lecture was newly added this year which summarizes many of the themes that are brought up sparsely throughout the entire curriculum
Some planetary health/ESH topics have been incorporated into the pre-existing pre-clerkship curriculum. Examples include a slide in the Nephrology core curriculum discussing the expanding kidney stone belt as a result of climate change-related changes in temperature and a slide in Brain and Behavior that cites climate change and the evolving host reservoir patterns as a major contributor to increased transmission of arboviruses.

1.22. 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?	
Yes, the **medical school** has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (1 point)	
No, the **medical school** does **not** have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (0 points)	
Score Assigned:	1
Score explanation: *UMSOM has appointed a Climate & Health Educational Lead, as well as a team of advising faculty. These professors work in collaboration with course directors and student leaders to integrate planetary health into existing coursework.*	

Section Total (49 out of 72)	**68.1%**

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Interdisciplinary Research

Section Overview: ***This section evaluates the quality and quantity of interdisciplinary planetary health research at the 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, institutions 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 emphasised.*

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your institution?	
Yes, there are faculty members at the **institution** who have a **primary** research focus in planetary health **or** sustainable healthcare/vetcare. (3 points)	
Yes, there are individual faculty members at the **institution** who are conducting research **related** to planetary health or healthcare sustainability, OR are part of a national/international sustainability working group, but it is not their primary research focus. (2 points)	
There are sustainability researchers at the **institution**, but not specifically associated with healthcare/vetcare. (1 point)	
No, there are **no** planetary health and/or sustainability researchers at the **institution** at this time. (0 points)	
Score Assigned:	3
Score explanation: *The University of Maryland has faculty members whose primary research focus is planetary health or healthcare sustainability, primarily in the Department of Epidemiology and Public Health. Examples include researchers like Dr. Zhekang Ying, Dr. Snehal Patel, and Dr. Judy LaKind. There are also several researchers with appointments in the Schools of Law and Nursing who study the effects of climate change on human health. Their research varies from global infectious disease to Baltimore city asthma disparities and occupational medicine.*	

2.2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?
There is **at least one** dedicated department or institute for interdisciplinary planetary health research. (3 points)
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. (2 points)
There is an **Occupational and Environmental Health department**, but no interdisciplinary department or institute for planetary health research. (1 points)

There is **no** dedicated department or institute. (0 points)	
Score Assigned:	1
Score explanation: *There is a Division of Occupational and Environmental Medicine at UMSOM, but the vast majority of research focuses on the field of Occupational Medicine. There are no specific mentions of climate change or planetary health on the Divisions website, and most of their current work is focused on employee health and disaster preparedness.*	

2.3. 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 institution?	
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. (3 points)	
Yes, there is a process in which community members impacted by climate and environmental injustice **advise** the climate + environmental research agenda. (2 points)	
No, but there are **current efforts** to establish a process for community members to advise or make decisions on the research agenda. (1 points)	
There is **no** process, and **no** efforts to create such a process. (0 points)	
Score Assigned:	0
Score explanation: *There is no process, and no efforts to create such a process. Current community outreach initiatives at UMSOM predominantly target community health through the lens of economic and racial injustice, not through the lens of environmental injustice.*	

2.4. Does your institution have a planetary health website that centralises ongoing and past research related to health and the environment?	
There is an **easy-to-use, adequately comprehensive** website that **centralises** 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. (3 points)	
There is a website that **attempts to centralise** various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive. (2 points)	
The **institution** has an **Office of Sustainability website** that includes **some** resources related to health and the environment. (1 point)	
There is **no** website. (0 points)	
Score Assigned:	3

Score explanation: *The Office of Sustainability website centralizes resources and information on sustainability at the University of Maryland, Baltimore and includes information about events, research, planetary health leadership, and funding opportunities across the UMB network of schools and campuses. For example, every year the office conducts an "Earth week" in April which contains environmental plenary sessions, and student-oriented activities such as plant pot decorating. The office is also in charge of year-round initiatives such as composting on campus.*

2.5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year. (4 points)	
Yes, the **institution** has hosted at least one conference or symposium on topics related to sustainable healthcare/vetcare in the past year. (3 points)	
Yes, the **institution** has hosted a conference on topics related to planetary health / sustianable healthcare/vetcare in the past three years. (2 points)	
The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event. (1 point)	
No, the **institution** has not hosted a conference on topics related to planetary health in the past three years. (0 points)	
Score Assigned:	0
Score explanation: *The institution has not hosted a conference on topics related to planetary health in the past three years.*	

2.6. Is your institution a member of a national or international planetary health or ESH/ESV organisation?	
Yes, the institution is a member of a national or international planetary health **or** ESH/ESV organisation. (1 points)	
No, the institution is **not** a member of such an organisation. (0 points)	
Score Assigned:	0
Score explanation: *The medical school is **not** a member of such an organization.*	

Section Total (7 out of 17)	**41.2%**

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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 colour. 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.*

3.1. Does your institution partner with community organisations to promote planetary and health?	
Yes, the **institution** meaningfully partners with **multiple** community organisations to promote planetary and environmental health. (3 points)	
Yes, the **institution** meaningfully partners with **one** community organisation to promote planetary and environmental health. (2 points)	
The **institution** does not partner with community organisations, but participates in community focused events relating to planetary health. (1 point)	
No, there is **no** such meaningful community partnership. (0 points)	
Score Assigned:	3
Score explanation: *As a requirement of the Practice of Medicine preclerkship course, first and second year students are required to amass a total of 25 hours amount of community service hours with approved community organizations. This past year, 4MyCity and the Baltimore Tree Trust were approved as service sites for the preclerkship course service learning requirement. Both of these organizations focus on sustainability - the former on reducing food waste, and the latter on reducing shade inequality by increasing trees in lower SES areas of the city.*	

3.2. Does your institution offer community-facing courses or events regarding planetary health?
The **institution** offers community-facing courses or events at least once every year. (3 points)
The **institution** offers courses or events open to the community at least once per year, but they are not primarily created for a community audience. (2 points)
The **institution** has promoted community-facing courses or events, but was not involved in planning those courses or events. (1 point)

The **institution/medical school** has not offered such community-facing courses or events. (0 points)

Score Assigned:	2

Score explanation:
In April 2023, the University of Maryland, Baltimore Office of Sustainability led community-facing Earth Month programming for residents of West Baltimore to promote earth-friendly habits and the conservation of natural resources. Events included a community meal, art classes, and a family movie night. The Office of Sustainability also led a tree planting event for Baltimore City youth, and during this event taught about the urban heat island effect. In the same month, the Office of Sustainability also held a community farming panel with representation from Backyard Basecamp, Baltimore Greenspace, the World Wildlife Fund, and the CDC Foundation to teach attendees about the intersection of environmental justice and food security in Baltimore City. The following month, the Office of Sustainability held a workshop for a Baltimore high school to teach about the importance of composting, gardening, and pollution reduction. The medical school itself has not hosted any such event, but a handful of students from the medical school have participated in Office of Sustainability events.

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

Yes, all students **regularly** receive communication updates dedicated to planetary health and/or sustainable healthcare. (2 points)
Yes, planetary health and/or sustainable healthcare topics are regularly included in communication updates to **some courses**. (1 point)
Students **do not** receive communications about planetary health or sustainable healthcare. (0 points)

Score Assigned:	0

Score explanation:
The Elm, a university-wide weekly newsletter, will sometimes feature a "Sustainability" section. This section is used by the UMB Office of Sustainability to provide updates on campus sustainability initiatives, brief articles highlighting campus sustainability "champions," and any upcoming sustainability events on campus. These updates do not cover sustainable healthcare, but largely focus on sustainability on campus. An example of an event was this years environmental plenary session which hosted several faculty and student researchers conducting environmental projects.

3.4. 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?

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. (2 points)
Yes, the **institution** or **main affiliated hospital trust** offers one course relating to planetary health and/or sustainable healthcare for post-graduate provider. (1 point)
There are **no** such accessible courses for post-graduate providers. (0 points)

Score Assigned:	0

Score explanation:
The School of Medicine is in the process of collating all CME-eligible activities that have been hosted within the past year, however this list is incomplete and as such it is not possible to comprehensively assess this metric.
Additionally, the School of Nursing has hosted a two semester certificate in Environmental Health for several years. This course is designed for professional nurses to help them incorporate environmental history-taking into their nursing practice.

3.5. Does your <u>institution</u> or its <u>affiliated teaching hospitals</u> have accessible educational materials for patients about environmental health exposures?
Yes, the **institution** or **<u>all</u> affiliated hospitals** have accessible educational materials for patients. (2 points)
Some affiliated hospitals have accessible educational materials for patients. (1 point)
No affiliated hospitals have accessible educational materials for patients. (0 points)

Score Assigned:	0

Score explanation:
To date there are no known commonly used resources developed by the University of Maryland Medical System to teach patients about environmental health exposures.

3.6. Does your <u>institution</u> or its <u>affiliated teaching hospitals</u> have accessible educational materials for patients about the health impacts of climate change?
Yes, the **institution** or **<u>all</u> affiliated hospitals** have accessible educational materials for patients. (2 points)
Some affiliated hospitals have accessible educational materials for patients. (1 point)
No affiliated hospitals have accessible educational materials for patients. (0 points)

Score Assigned:	0

Score explanation:

To date there are no known commonly used resources developed by the University of Maryland Medical System to teach patients about the health effects of climate change.

Section Total (8 out of 14)	**57.14%**

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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.*

4.1. Does your institution offer support for students interested in enacting a sustainability initiative/QI project?	
Yes, the **institution** *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum. (2 points)	
The **institution** encourages sustainability QI projects (to fulfil 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. (1 point)	
No, the institution does not offer opportunities or support for sustainability initiatives or QI projects. (0 points)	
Score Assigned:	1
Score explanation: *Unlike the affiliated undergraduate campus (University of Maryland, College Park), which offers $1-2,000 Sustainability Mini Grants for any student, faculty, or staff to apply towards projects benefiting sustainability, UMSOM does not offer a similar direct source of funding. UMSOM's Office of Student Research offers funding to student research projects through the Program for Research Initiated by Students and Mentors (PRISM), though sustainability projects are not targeted for funding. There are no student research funding awards earmarked exclusively to sustainability initiatives/QI projects at the School of Medicine.*	

4.2. Does your institution offer opportunities for students to do research related to planetary health and/or sustainable healthcare/vetcare?	
The **institution** has a **specific** research program or fellowship for students interested in doing planetary health/sustainable healthcare/vetcare research. (2 points)	
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. (1 point)	
There are **no opportunities** for students to engage in planetary health/sustainable healthcare research. (0 points)	
Score Assigned:	1
Score explanation:	

There are a few researchers interested in environmental health topics within the School of Medicine. It has been easier for students to work with them than in recent years because of the established connections formed by older medical students interested in sustainability-directed projects. However, it is very difficult to use the faculty research directory to locate mentors since search tags such as "sustainable healthcare" are not utilized. Other planetary health researchers exist in the School of Law, School of Nursing, and the School of Social Work, but students in the School of Medicine must be both aware of these opportunities and have spare time to pursue them.

4.3. Does the <u>institution</u> have a webpage where students can find specific information related to planetary health and/or sustainable healthcare/vetcare activities and mentors within the institution? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
The institution has a webpage with specific information related to planetary health or sustainable healthcare/vetcare that includes up-to-date information on relevant initiatives and contact information of potential mentors. (2 points)	
There is an institution webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the institution, but it lacks key information. (1 point)	
There is **no institution** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors. (0 points)	
Score Assigned:	0
Score explanation: *There is no medical-school specific webpage for locating planetary health and/or sustainable healthcare projects or mentors. Additionally, the University of Maryland Baltimore Office of Sustainability does not have any information on sustainable healthcare activities and/or mentors within the medical school. Conversely, the affiliated undergraduate campus (University of Maryland, College Park) has SustainableUMD, a webpage dedicated to connecting students with sustainable healthcare activities and mentorship - although not within the medical school.*	

4.4. Does your <u>institution</u> have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?	
Yes, there is a student organisation **with faculty support** at my institution dedicated to planetary health or sustainability in healthcare. (2 points)	
Yes, there is a student organisation at my institution dedicated to planetary health or sustainability in healthcare but it **lacks faculty support.** (1 point)	
No, there is **not** a student organisation at my institution dedicated to planetary health or sustainability in healthcare. (0 points)	
Score Assigned:	2

Score explanation: *There is a chapter of the Medical Students for a Sustainable Future (MS4SF) at the University of Maryland School of Medicine, and it is supported by a faculty mentor who focuses on environmental advocacy and stewardship in medical education and practice. UMSOM's MS4SF chapter plans events such as composting workshops in collaboration with UMB's Office of Sustainability to get students more involved and get connected with broader institutional efforts. MS4SF also annually recruits writers, editors, and evaluators for the PHRC.*

4.5. Is there a student liaison representing sustainability interests who serves on a <u>department or institutional</u> decision-making council to advocate for curriculum reform and/or sustainability best practices?	
Yes, there is a student representative that serves on a department or institutional decision-making council/committee. (1 points)	
No, there is no such student representative. (0 points)	
Score Assigned:	0
Score explanation: *There is no formal medical student sustainability representative on a medical school or institutional decision-making council, although such council exists. Students may choose to join the Office of Sustainability's Working Groups, but otherwise, students do not have a directly appointed role in influencing curriculum reform/sustainability best practices. Additionally, these groups operate at the institution-wide, University of Maryland, Baltimore-level. Student government representatives have shown informal interest in establishing such positions within the School of Medicine, but to date there has been no formal movement on this front.*	

4.6. In the past year, has the <u>institution</u> had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	**Score**
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.	0
Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.	0

Wilderness or outdoors programs (e.g., that organise hiking, backpacking, kayaking, or other outings for students)	0

Score explanation:

1. *In collaboration with UMB's Office of Sustainability, UMB's Intercultural Center held a virtual urban farming panel in April 2023. Students who attended had the opportunity to learn from individuals involved in food justice and urban farming initiatives in Baltimore City.*
2. *The Community Engagement, Environmental Justice, & Health (CEEJH) program in the University of Maryland School of Public Health held a symposium in in September 2023 for community members, researchers, faculty, and students for an in-depth examination of ongoing environmental and climate justice issues affecting the DC-Maryland-Virginia (DMV) region and communities nationally. The event had virtual registration/attendance and was advertised by the UMB Office of Sustainability to the UMB graduate schools, which includes medical students.*
3. *In 2024, MS4SF, Environmental Justice in Action, University Student Government Association, UMB Office of Sustainability, worked together to create a community garden on a School of Medicine building rooftop.*

Section Total (7 out of 15)	**47%**

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

Campus Sustainability

Section Overview: ***This section evaluates the support and engagement in sustainability initiatives by the 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 endeavour, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinising 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 minimising environmental impact.*

5.1. Does your institution have an Office of Sustainability?	
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. (3 points)	
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 hospital sustainability. (2 points)	
There are **no salaried sustainability staff,** but there is a sustainability task force or committee. (1 point)	
There are **no** staff members **or** task force responsible for overseeing campus sustainability. (0 points)	
Score Assigned:	3
Score explanation: *The University of Maryland, Baltimore has a dedicated Office of Sustainability with three full-time staff members. The University of Maryland Medical Center has a multi-disciplinary Green Team led by a Sustainability Manager. The Green Team is made up of medical doctors, PhDs, and other faculty.*	

5.2. How ambitious is your institution's plan to reduce its own carbon footprint?	
The institution has a **written and approved plan** to achieve carbon neutrality by **2030** (5 points)	
The institution has a **written and approved plan** to achieve carbon neutrality by **2040** (3 points)	
The institution has a stated goal of carbon neutrality by **2040** but has **not created a plan** to reach that goal or the **plan is inadequate** (1 point)	
The institution does **not** meet any of the requirements listed above (0 points)	
Score Assigned:	1
Score explanation:	

University of Maryland, Baltimore has updated its goal to achieve carbon neutrality by 2045, previously 2050, in accordance with the new Climate Solutions Now Act of 2022. The plan is well-defined and has fueled current projects but does not meet these guidelines in the PHRC.

5.3. Do buildings/infrastructure used by the institution for teaching (not including the hospital) utilize renewable energy?	
Yes, institution buildings are **100%** powered by renewable energy. (3 points)	
Institution buildings source **>80%** of energy needs from off-site and/or on-site renewable energy. (2 points)	
Institution buildings source **>20%** of energy needs from off-site and/or on-site renewable energy. (1 point)	
Institution buildings source **<20%** of energy needs from off-site and/or on-site renewable energy. (0 points)	
Score Assigned:	1
Score explanation: *UMB purchases 100% off-site renewable electricity (solar, wind, and other Green-e RECs) and is adding on-site solar to two of its parking garages to generate additional energy. However, the University still uses steam for much of its heating on campus. The University's energy use is served by approximately 58% renewable electricity, and 42% steam.*	

5.4. Are sustainable building practices utilised for new and old buildings on the institution's campus, with design and construction of new buildings and remodelling of old buildings conforming to a published sustainability rating system or building code/guideline?	
Yes, sustainable building practices are utilised for new buildings on the intitution's campus and the **majority** of old buildings **have been retrofitted** to be more sustainable. (3 points)	
Sustainable building practices are utilised for new buildings on the institution's campus, but most old buildings have **not been retrofitted.** (2 points)	
Sustainable building practices are **inadequately or incompletely** implemented for new buildings. (1 point)	
Sustainability is **not considered** in the construction of new buildings. (0 points)	
Score Assigned:	3
Score explanation: *All new buildings at University of Maryland, Baltimore at least meet LEED Silver level of certification. As of February 2024, 52.64% of campus square footage has been converted to LED lightbulbs with a goal of 100% conversion. The majority of older buildings have been and*	

continue to be retrofitted by maintaining and updating HVAC, plumbing, and other building systems.

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

Yes, the institution 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-utilised by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default. (2 points)

The institution has implemented **some** strategies to provide environmentally-friendly transportation options, but the options are **unsatisfactorily** accessible or advertised. (1 point)

The institution has **not** implemented strategies to encourage and provide environmentally-friendly transportation options. (0 points)

Score Assigned:	1

Score explanation:
The University of Maryland, Baltimore, offers a free shuttle bus that travels to nearby neighborhoods in Baltimore. However, the shuttle only operates on weekdays and the hourly schedule is not inclusive to transportation needs during the middle of the day (shuttles run in the morning and evening/night). The University has ample bike parking spots as well as a Campus Green Map that allows students to readily see bike rack availability. Third- and Fourth-year medical students are often placed in off-campus clinical sites. There is a shuttle between the Downtown and Midtown University hospitals, but other sites require that students drive.

5.6. Does your institution have an organics recycling program (compost) and a conventional recycling program (aluminium/paper/plastic/glass)?

Yes, the institution has **both** compost **and** recycling programs accessible to students and faculty. (2 points)

The institution has **either** recycling **or** compost programs accessible to students and faculty, but not both. (1 point)

There is **no** compost or recycling program at the institution. (0 points)

Score Assigned:	2

Score explanation:
UMB has a self-service waste program, which removes individual deskside bins from offices and includes mixed recycling and paper and cardboard recycling streams. The University also has a Community Compost Drop-off program at two sites on campus, where UMB and Community members can bring food scraps to designated bins. In 2023, the program collected approximately 2,000 lbs of food scraps to be composted. The compost program now offers drop off locations at the

Community Engagement Center, as well as at the AMC Campus Center. Participants can also opt in to receive a free bag of compost from this program for personal use.

5.7. Does the institution apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
Yes, the institution has a**dequate s**ustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability. (3 points)	
There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The institution **is engaged** in efforts to increase food and beverage sustainability. (2 points)	
There are sustainability guidelines for food and beverages, but they are **insufficient or optional.** The institution is **not** engaged in efforts to increase food and beverage sustainability. (1 point)	
There are optional resources available for low waste, zero waste, and green eats guidelines for hosting events provided by the Office of Sustainability.	
Score Assigned:	2
Score explanation: *The University of Maryland, Baltimore does not have a dedicated dining hall on campus but has contracts with two local vendors to provide food and catering services to several buildings on campus. The current contract language states that the Contractor's responsibilities include: implement sustainable operations and practices; and purchase goods and services from local vendors whenever possible to provide the freshest ingredients, along with supporting the local economy of West Baltimore, Baltimore City, and the State of Maryland.* *In addition to the food service contract, UMB's Office of Sustainability has created and promotes a Green Eats List and Map to highlight local vendors who can provide plant-based options, compostable utensils, bulk condiments and drinks, and minimal packaging using catering trays for serving food.*	

5.8. Does the institution apply sustainability criteria when making decisions about supply procurement?
Yes, the institution has **adequate** sustainability requirements for supply procurement **and** is **engaged** in efforts to increase sustainability of procurement. (3 points)
There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The institution is **engaged** in efforts to increase sustainability of procurement. (2 points)
There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The institution is **not engaged** in efforts to increase sustainability of procurement. (1 point)
There are **no** sustainability guidelines for supply procurement. (0 points)

Score Assigned:	2

Score explanation:
The University of Maryland, Baltimore does not have a dedicated dining hall on campus but has contracts with two local vendors to provide food and catering services to several buildings on campus. The current contract language states that the Contractor's responsibilities include: implement sustainable operations and practices; and purchase goods and services from local vendors whenever possible to provide the freshest ingredients, along with supporting the local economy of West Baltimore, Baltimore City, and the State of Maryland.

In addition to the food service contract, UMB's Office of Sustainability has created and promotes a Green Eats List and Map to highlight local vendors who can provide plant-based options, compostable utensils, bulk condiments and drinks, and minimal packaging using catering trays for serving food.

5.9. Are there sustainability requirements or guidelines for events hosted at the institution?	
Every event hosted at the institution **must** abide by sustainability criteria. (2 points)	
The institution **strongly recommends or incentivizes** sustainability measures, but they are **not required.** (1 point)	
There are **no** sustainability guidelines for institution events. (0 points)	
Score Assigned:	1

Score explanation:
The University of Maryland, Baltimore Office of Sustainability includes a list of sustainable supply procurement vendors on a sustainable procurement webpage, but the School of Medicine does not have any outward facing resources to indicate a commitment to sustainable procurement.

5.10. Does your institution have programs and initiatives to assist with making lab spaces more environmentally sustainable?	
Yes, the institution has **programs** and **initiatives** to assist with making lab spaces more environmentally sustainable. (2 points)	
There are **guidelines** on how to make lab spaces more environmentally sustainable, but not programs or initiatives. (1 point)	
There are **no** efforts at theinstitution to make lab spaces more sustainable. (0 points)	
Score Assigned:	1

Score explanation:
The UMB Office of Sustainability provides a sustainable events guide which is circulated to student organization leaders at the beginning of their terms. The guide provides

recommendations, and adherence to the guide is not incentivized. One example of the guide being used is instructions on the composting process on campus.

5.11. Does your institution's endowment portfolio investments include fossil-fuel companies?	
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. (4 points)	
The institution is **entirely divested** from fossil fuels. (3 points)	
The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments. (2 points)	
The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organised advocacy** for divestment. (1 point)	
Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that. (0 points)	
Score Assigned:	2
Score explanation: The University of Maryland, Baltimore's Office of Sustainability launched a Green Labs program in 2022 which guides labs through processes to improve the sustainability of their operations, including energy conservation and waste reduction. *The Office of Sustainability also manages a Freezer Rebate program which provides labs with funding incentives to purchase more efficient ULT freezers in support of campus energy goals.*	

Section Total (19 out of 32)	**59%**

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

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(49/72) x 100 = 68.1%%	B
Interdisciplinary Research (17.5%)	(7/17) x 100 = 41.2%	C-
Community Outreach and Advocacy (17.5%)	(6/14) x 100 = 42.9%	C-
Support for Student-led Planetary Health Initiatives (17.5%)	(7/15) x 100= 46.6%	C
Campus Sustainability (17.5%)	(19/32) x 100 = 59.4%	C
Institutional Grade	**(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = 53.68%**	**C**

Report Card Trends

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