Planetary Health Report Card (Medicine):

University of Massachusetts T.H. Chan School of Medicine

2024-2025

2024-2025 Contributing Team:

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Summary of Findings

Overall Grade	B

Curriculum	B-

- The medical school has made substantial strides in integrating climate, planetary, and human health topics into the core curriculum. Notable highlights include the detailed and seamless integration of these topics in the respiratory pre-clinical block. However, integration of climate-related topics remains inconsistent across curriculum blocks, with several areas (e.g., cardiovascular, reproductive blocks) only partially addressing the impact of climate on health.
- **Recommendations**: Curriculum leaders, including (1) students and faculty on the Climate Change Curriculum Taskforce and (2) faculty overseeing the "Societal Forces Impacting Health and Disease" longitudinal focus topic should formulate a plan to begin addressing sustainable healthcare practices throughout the core curriculum, in both the pre-clinical and clinical years. This area should be prioritized given the school's minimal focus on sustainable clinical practices, which make up a significant portion of this assessment's grade..

Interdisciplinary Research	B

- UMass Chan faculty members across the fields of dermatology, emergency medicine, and prevention research have interests in planetary health and healthcare sustainability. Faculty members at the larger University of Massachusetts institution have primary interests in planetary health research, but these opportunities are underutilized by students.
- **Recommendations:** UMass Chan should increase visibility of faculty at other campuses involved in planetary and health care research. The medical school should consider hosting a conference or symposium focused on planetary health, environmental injustice, and/or healthcare sustainability. UMass should consult directly with communities disproportionately impacted by climate change and environmental injustice to inform ongoing and future research.

Community Outreach and Advocacy	B-

- The medical school has cultivated multiple partnerships with local organizations to further planetary health goals. These opportunities allow students to engage in climate advocacy and deepen their knowledge of environmental justice in their communities. UMass Chan's main hospital affiliations provide readily accessible online patient libraries that effectively educate patients on environmental exposures and the impact of climate change on health.
- **Recommendations**: UMass Chan should continue to seek out and cultivate partnerships with additional local, climate-minded organizations. Given health providers' roles as essential advocates for patient health, UMass Chan should develop continuing education materials addressing the impact of climate change on health for its postgraduate providers. More affiliated teaching hospitals should provide accessible information to patients on environmental exposures and the effects of climate change on health.

Support for Student-Led Initiatives	B

- The institution hosts a climate change organization, the Climate Coalition, which includes medical students supported by faculty. The Coalition is currently in its sixth year of operation and actively supports various student-led initiatives, including a thriving community garden and a climate change-related optional elective course.
- **Recommendations**: UMass Chan should advertise initiatives promoting student and faculty engagement in climate health projects and research more transparently and more frequently. Efforts should ensure that climate advocates have representation within the school's governing bodies.

Campus Sustainability	B-

- The Sustainability Office offers robust support for student-led initiatives around climate and health and is actively working with vendors to increase the sustainability of procurements. The institution has detailed a plan for decarbonization by 2050.
- **Recommendations**: Since new buildings on campus have effectively implemented sustainability practices, the school should also prioritize refitting older buildings to utilize such practices. UMass Chan should also explore options to increase the proportion of renewable energy all buildings use, including sourcing off-site renewable energy.

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 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 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 5) medical 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 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.

- **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 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.

- **Core Curriculum:** This refers to taught material that is develiered 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:Score explanation: All medical students at UMass Chan have the opportunity to enroll in Optional Enrichment Electives (OEEs), which are non-credit-bearing, student-led and faculty-supported courses aiming to enhance medical student knowledge in a specialized area. One such elective offered in the fall of 2024, "Climate Health & Action," enabled students to participate in a six-week live lecture series detailing the numerous intersections of climate and healthcare. Additionally, the school has implemented a one-week-long Flexible Professional Experience (FPE) called "Healthcare Sustainability," where third-year students can explore healthcare sustainability on their clinical rotations. Given the presence of more than one optional elective that primarily focuses on climate change and/or planetary health, we are awarding three points.	

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: The relationship between extreme heat, health risks, and climate change was comprehensively addressed in the core curriculum, with an in-depth lecture titled "SDOH Climate Change and Human Health" part of the "Principles 2" block. This lecture detailed the distinct series of events through which extreme heat contributes to climate change and harms human health. This topic was also addressed in the "Blood, Immunity, Infection" curriculum block in the lecture titled "Fungi I," which attributed the rise of fungal infections partly to the expansion of endemic fungi into new regions as a result of climate change. Finally, in the cardiovascular block, the lecture titled "Shock I" also featured a slide explicitly linking heat stroke to climate change.	

1.3. Does your medical school 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 UMass Chan Medical School's required first-year Vista Curriculum "Principles 1" Course, course directors formulated a case study that explicitly delineated how extreme weather events exacerbated by human-caused climate change pose a danger to human health. Specifically, one pathway contributing to this harmful relationship occurred through the rise of harmful algal blooms containing cyanobacteria. Additionally, the core block also highlighted the mechanism through which the environment can influence gene expression: lectures identified that anthropogenic factors, wildfires, rising temperatures, increased UV radiation, and increased polycyclic aromatic hydrocarbon (PAH) emissions can contribute to epigenetic modifications that negatively impact health. Professors also included a discussion on extreme weather and wildfires on health in the core curriculum "Principles 2" block with a lecture titled "SDOH Climate Change and Human Health." Finally, in the "Climate Health and Action" OEE, speakers addressed disruptions in healthcare delivery and healthcare systems caused by extreme weather events.	

1.4. Does your medical school 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: This topic was explored in depth within the core curriculum, where "Fungi I"and "Fungal Infections," lectures given in the first and second years, respectively, each feature a slide on how climate change represents a driving factor for the rise of fungal infections and the spread of endemic fungi to new regions. This topic was also mentioned in the lecture titled "Vector Borne Borrelia, Rickettsia, Y. pestis, Francisella" part of the "Blood, Immunity, and Infection" block, which emphasized how climate change contributes dramatically to changes in the epidemiology and range of vector borne diseases carried by mosquitoes and ticks.	

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	3
Score explanation: In the first-year core Principles I and II blocks, the curriculum briefly discusses the effect that wildfires, PAH emissions, fossil fuel emissions, and other forms of air pollution have on respiratory illness in various sessions such as "SDOH Climate Change and Human Health" and "Epigenetics Overview." In the second-year respiratory block, the school offers a case-based learning style lecture on the consequences that climate change and global warming have on select respiratory conditions, such as allergic rhinitis and asthma. The lecture touches on the biological effects of pollution, ground-level ozone, particulate matter, and indoor air pollution, as well as the racial and socioeconomic disparities of exposure and disease burden. Additionally, a lecture titled "Obstructive Lung Disease" in the same block addresses the connection between ozone, particulate matter, the earlier onset and extended duration of pollen seasons, and respiratory health. Lectures on "Asthma" and "Environmental Determinants of Respiratory Health" also effectively communicate the impact of climate change on respiratory health.	

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.
This topic was **briefly** covered in the **core** curriculum.
This topic was covered in **elective** coursework.

This topic was **not** covered.	
Score Assigned:	2
Score explanation: In the second-year "Cardiovascular System" block, the "Shock I" lecture briefly addressed heat stroke and explicitly drew a connection between climate change and heat stroke. However, this topic was not further explored within the core curriculum.	

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	2
Score explanation: In the spring of 2024, second-year medical students briefly learned about the impact of climate change on mental health during the introductory lecture of the Nervous System curriculum block. However, this topic was not further explored in this block or others. Outside of the core curriculum, the Psychiatry Interest Group organized an optional lecture in collaboration with the Climate Psychiatry Alliance, detailing trends in climate anxiety and tools health professionals can use to help patients.	

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	3
Score explanation: Multiple lectures and activities in the core curriculum, including "SDOH Climate Change and Human Health," "Social Determinants of Health Independent Learning Module," "The Physician Role in Addressing SDOH," a "Principles 1" Physiology case study on cyanobacteria and algal blooms, and a "Community Vital Signs" case study explored the relationships between health, individual patient food security, ecosystem health, and climate change. Students also learned about the direct and indirect impact of food insecurity in the second-year course "Patients Two" material on social determinants of health (SDOH). In addition,	

during the "Early Clinical Learning" course, which integrates pre-clinical course content with clinical applicability, students participated in a Social History taking session addressing the relationships between health, individual patient food and water security, and climate change. Finally, students in the Population Urban and Rural Community Health (PURCH) track engaged with multiple community speakers who addressed these topics in weekly lectures. While PURCH speakers further highlighted the relationship between food insecurity and climate change in this lecture series, we recommend these topics also be addressed in lectures targeting the entire medical student body.

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	2
Score explanation: In the first-year core curriculum, students are introduced to the social determinants of health and their impact on the Worcester community, highlighting the intersectionality of factors such as race, gender, age, socioeconomic status, cultural background, and environmental health. Additionally, second-year students also attend lectures titled "Environmental Determinants in Respiratory Health" and "SDOH Factors in Respiratory Disease" that emphasize the disproportionate impact of climate change on marginalized populations' respiratory health. However, while the second-year core respiratory block effectively addressed the influence of climate change on these populations of interest, other blocks in the curriculum could benefit from more content related to this topic. Finally, PURCH students also heard from multiple speakers addressing the impact of climate change on marginalized populations, yet these lectures and discussions were not available to the medical student body at-large.	

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	0

Score explanation: To the best of our knowledge, this topic was not covered in either the core or elective curriculum.

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	2
Score explanation: This was addressed briefly in the "Male Infertility" lecture, which drew the connection between pollutants and male infertility. The lecture "SDOH Climate Change and Human Health" also mentions that burning fossil fuels can contribute to low birth weight, high blood pressure, stillbirths, and preterm births in pregnant people. This topic was also addressed in the "Plastic Pollution" session within the "Climate and Health Action" OEE, where the lecturer discusses how infants in the womb are particularly vulnerable to plastic chemicals and their negative health effects, including brain damage and birth defects.	

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	2
Score explanation: In the first-year, problem-based learning module on lead poisoning, the lecturer briefly mentions that children in Worcester are particularly exposed to lead paint. However, the influence of human-caused environmental threats on the surrounding Worcester or Springfield communities is not explored further within the core curriculum. In the "Climate Health & Action" Optional Enrichment Elective, several lecturers do discuss the impact of medical waste on the health of the community surrounding the hospital; however, these lectures are completely optional given their specific focus on climate change and planetary health, thus they tend to attract a limited medical student audience.	

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	0
Score explanation: To the best of our knowledge, this topic was not covered in either the core or elective curriculum.	

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.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	2
Score explanation: In the second-year respiratory block core curriculum, students learn about the disproportionate impact of environmental toxins on interstitial and obstructive lung disease in marginalized populations such as those listed above. These topics are covered comprehensively in lectures titled "SDOH Factors in Respiratory Disease" and "Environmental Determinants of Disease." However, while this subject matter was addressed in the respiratory block, other curricular blocks could benefit from more in depth exploration and discussion of these topics. Outside the core curriculum, within the "Climate Health & Action" optional elective, multiple lectures, including one on plastic pollution, addressed the inequitable effects of environmental pollutants on marginalized communities by illustrating that plastic pollution, fracking, and other similarly harmful practices tend to be concentrated in poorer areas.	

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.

This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	2
Score explanation: In the first-year course "Principles II," during the Epidemiology-Biostatistics block, students read and review an article titled "Healthy Eating and Risks of Total and Cause-Specific Death among Low-Income Populations of African-Americans and Other Adults in the Southeastern United States: A prospective Cohort Study" (Yu et al., 2015). As part of this discussion, students were asked about any additional factors related to a changing climate and other environmental exposures that could have affected the conclusions of the study. The subsequent class discussion on this question tackled the health benefits of a plant-based diet. Additionally, in the second-year curriculum, the "Early Clinical Learning" course covers nutritional counseling that emphasizes the health benefits of a plant-based diet as part of multiple sessions. However, while the curriculum does address the health benefits of a plant-based diet, it fails to mention the environmental benefits such a diet can provide.	

1.16. Does your medical school curriculum address the carbon footprint of healthcare systems?	
This topic was explored **in depth** by the **core** curriculum.	
This topic was **briefly** covered in the **core** curriculum.	
This topic was covered in **elective** coursework.	
This topic was **not** covered.	
Score Assigned:	1
Score explanation: The carbon footprint of healthcare is discussed in the Health Systems Science Pathway course, which reaches a select group of students in the class–those who have specifically elected to be part of this specialized curricular track. As a result, this topic is only partially covered in the curriculum, and those sessions do not reach the entire medical student population. *As part of the Optional Enrichment Elective "Climate Health and Action," a lecturer presented on the carbon footprint of healthcare systems in her "Climate Change, Dermatology, and Medical Waste" talk, which focused on solutions that physicians and medical students can employ to reduce their carbon footprint (e.g., cutting back on single-use plastics where it is safe and empirically supported, avoiding use of gloves unless necessary, performing waste audits). Additionally, this elective course also hosted a session on "Advancing Climate Change Action from the Operating Room," which addressed ways to reduce the carbon footprint by targeting operating room practices.*	

1.17. Does your medical school curriculum cover these components of sustainable	**Score**

clinical practice in the <u>core</u> curriculum? (points for each)	
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) .	0
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)	0
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: To the best of our knowledge, none of these topics were covered in the core curriculum. However, students enrolled in the Optional Enrichment Elective "Climate Health and Action" were exposed to several of these topics as part of sessions titled "Advancing Climate Change Action from the Operating Room" and "Climate Change, Dermatology, and Medical Waste." Overall, healthcare sustainability remains one of the largest gaps in the core curriculum at UMass Chan Medical School.	

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: The first-year lecture on "SDOH Climate Change and Human Health" addressed the value of primary care physicians as a trusted source of information for people across the political spectrum. The lecture presents a strategy medical students can use to begin conversations about the health effects of climate change by bringing up six key facts ("It's real, It's us, Experts agree, It's bad, There's hope, Others care"). The lecture also details how reading brief statements on the eight harming pathways of climate change and identifying those who are most likely to be harmed increases people's cognitive and affective engagement with the issue. While this was addressed effectively in a lecture, it would also be beneficial for students to practice this important skill in the curriculum as part of modules such as "Early Clinical Learning."

1.19. In training for patient encounters, does your medical school's 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 UMass Chan "Early Clinical Learning" curriculum, which primarily teaches students history-taking and doctoring skills, includes strategies for effectively taking an environmental history. Additionally, the session titled, "Social History and Social Determinants of Health" teaches students how to ask about a patient's living arrangement, workplace, and workplace exposures to assess a wide spectrum of potential environmental exposures. In a separate session within the same course, titled "Why is my Stomach Killing me?" students work through an undifferentiated case of a young patient presenting with lethargy and confusion as a result of lead poisoning. Since both of these classes in the required core curriculum address elements of environmental history taking, we are awarding two points.	

Curriculum: Administrative Support for Planetary Health

1.20. Is your medical school 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: The University of Massachusetts Chan Medical School is in the process of making significant improvements to planetary health education. Notably, the medical school has a website solely dedicated to climate and health education, which outlines the climate curriculum's	

goals and objectives. The website is still undergoing development, with next steps involving tagging climate content through each of the preclinical curriculum subjects.

Additionally, UMass rolled out a new, "Vista" curriculum in 2023, wherein climate change is specifically emphasized through the "Societal Forces Impacting Health and Disease" longitudinal focus topic and its core domain,"Environmental forces," which requires course directors to address climate change trends, its impact on health and disease, disaster prevention and preparedness, and environmental justice in each pre-clinical curricular block. In addition to this faculty committee directly responsible for overseeing the integration of climate topics into the core curriculum, in 2023, the school also established a Climate Change Curriculum Taskforce dedicated to further integrating planetary health into the core curriculum. This committee includes both faculty and student members who communicate directly with course leaders. While this Taskforce is currently on hiatus, work is expected to resume in the upcoming academic year.

1.21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core 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: Currently, the topics mentioned are well-interspaced into the first- and second-year curriculum, with lectures in biochemistry (e.g., effects of exposure to pollutant-driven free radicals), genetics (e.g., effects of pollutants on DNA methylation patterns), respiratory health, epidemiology and biostatistics. Currently, however, the majority of the information related to planetary health and climate change is presented within the first- and second-year curriculum, although efforts are now underway to increase integration throughout the third and fourth years. Given this lack of climate and health education within the clinical years curriculum, we are awarding four points.	

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: The aforementioned "Societal Forces Impacting Health and Disease" longitudinal focus topic includes a core domain titled "Environmental forces" that requires each course director to address climate change trends and integrate relevant climate-related topics within their respective curricular blocks (e.g., cardiovascular block, respiratory block, etc.) *In addition, the Climate Change Curriculum Taskforce, which includes both faculty and student members, is dedicated to further integrating planetary health into the curriculum by directly working with course directors.*	

Section Total (46 out of 72)	**63.89%**

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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: We carefully reviewed the University of Massachusetts' research network. Across all of its schools and colleges, over 400 faculty members are actively involved in interdisciplinary environment and sustainability research. The institution harbors multiple centers and institutes (e.g., Northeast Climate Adaptation Science Center) dedicated to research that addresses the intersection of the natural environment, human health, and food systems. For example, the University of Massachusetts - Lowell campus has a dedicated Safe Home Care and Hospitals Research Team within the Sustainable Hospitals Program, dedicated to identifying sustainable practices that mitigate environmental hazards and provide environmental benefits. While opportunities at other campuses are available to medical students by virtue of the school being under the umbrella of the larger University of Massachusetts, these opportunities are seldom advertised to students, and there is a sense that students are limited to working on opportunities offered by UMass Chan Medical School. *The UMass Chan Medical School has over 300 basic-science faculty in various appointments and over 3200 associated clinical faculty. While we were unable to identify faculty at the Medical School whose primary research or interdisciplinary endeavors focused on planetary health and/or healthcare sustainability, there are several faculty members whose research interests include climate change and sustainability.*	

To address healthcare sustainability, a UMass faculty member in the field of dermatology is collaborating with medical students on (1) a project to increase education and awareness of the carbon footprint of inhaler options and (2) a project to increase signage in the operating room to ensure appropriate waste sorting and collection. The faculty member has conducted research on tray utilization in Mohs surgery and perceptions of sustainability among Mohs surgeons. The results of her research efforts will likely be published in subsequent months. This same faculty member in the dermatology department has historically offered students the opportunity to participate in a summer research project on environmental sustainability in medicine, examining what measures hospital departments can take to increase their environmental awareness and sustainability. This project included a curriculum of lectures, journal reviews on environmental sustainability, and an opportunity to shadow clinicians to observe potential areas for sustainable intervention. In the field of emergency medicine, faculty members are partnering with students to conduct emergency department waste audits.

To promote planetary health and climate resilience, researchers at the Prevention Research Center have been heavily involved in the revision of the Building Resilience and Climate Equity (BRACE) framework. This framework was developed by the CDC to protect human health in the context of climate change. The revision incorporated lessons from health departments, scientific literature, experts, and community members to help communities assess climate and health threats, develop effective interventions, and promote climate resilience.

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:	3

Score explanation: The University of Massachusetts has a highly productive research enterprise with a multitude of research departments in the realm of sustainability. Over 400 faculty members across 41 departments and in multiple schools and colleges are actively involved in such interdisciplinary research. Some of these departments include the Department of Environmental Conservation, the Department of Earth, Geographic, and Climate Sciences, the School of Earth and Sustainability, and the Stockbridge School of Agriculture.

Additionally, the University of Massachusetts - Amherst campus is home to the Institute for Diversity Science, an interdisciplinary Climate research group composed of over 60 faculty and researchers with the specific mission to "pursue a wide range of projects that examine the diversity of human impacts and responses in the context of global climate change." The University of Massachusetts - Lowell campus hosts the Climate Change Initiative, which brings together researchers from across the University to "catalyze evidence-based climate action through research, education and community engagement." One of their core research focuses includes the

health impacts of climate change. We are not awarding points for researchers at these programs, however, because they are not housed at the medical school.

At the medical school, there are researchers at the Prevention Research Center at UMass Chan who have been highly involved in revising the BRACE framework to support public health action in the context of climate change. However, there is no dedicated research department on the medical school campus for interdisciplinary planetary health research.

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:	2

Score explanation: We have only been able to identify such processes at the medical school, where researchers at the Prevention Research Center have been heavily involved in the revision of the Building Resilience and Climate Equity (BRACE) framework. The framework was created by a CDC Cooperative Agreement with the Prevention Research Center at the University of Massachusetts Chan Medical School in 2011. This framework was developed to protect human health in the context of climate change.

In September 2022, the Climate and Health Program of the CDC funded a revision that was later completed in September 2024. This revision was led by the Prevention Research Center at UMass Chan Medical School, who later assembled a multi-disciplinary team including members from the Climate Equity Policy Center, American Public Health Association, Health Resources in Action, the University of New Hampshire, and the George Washington University. The revision incorporated lessons from health departments, the scientific literature, experts, and community members to help communities assess climate and health threats, develop effective interventions, and promote climate resilience. The revision further incorporated the model of the Public Health 3.0 plan first created by National Association of County and City Health Officials (NACCHO), which sought to "position health departments as "chief health strategists" in their communities, who are responsible for facilitating the establishment and maintenance of cross-sector collaborations with community organizations, other partners, and other government agencies to address local climate impacts and prevent further harm to historically underserved communities." The revised curriculum targets the collaboration of state, tribal, local, and territorial (STLT) departments, governmental agencies, and community organizations that have interests in improving climate change and health equity in their communities.

In the 2024-2025 academic year, UMass Chan introduced an Environmental Justice program, featuring a part-time, funded position focused on building the program, ensuring its longevity and

system-wide adoption. The person in this role will be responsible for designing the program, including defining environmental justice at UMass Chan, engaging with local communities, and exploring ways to involve them in various projects. Additionally, the position will involve upkeeping a LibGuide on the library website to allow for community involvement and organizing webinars on topics such as Indigenous health and other environmental justice issues.

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:	1
Score explanation: No unified institutional website dedicated to announcing and communicating resources about Planetary Health or Health Care Sustainability research was identified at the University of Massachusetts. The University of Massachusetts Chan Medical School does have an Office of Sustainability website with some resources and project updates but does not share information about ongoing and past research related to health and the environment. The University of Massachusetts Chan Medical School also has a Prevention Research Center website that highlights some ongoing initiatives and projects.	

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 / sustainable 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:	2

Score explanation: In March 2024, the University of Massachusetts Amherst hosted the 2024 Energy Transition Symposium, where students, faculty, and staff from in the Amherst campus presented their research on topics such as clean energy, climate, and decarbonization. In June 2024, the School of Public Health and Health Sciences at UMass Amherst also hosted an inaugural "Healthcare Culinary Conference:Bridging Healthcare, Food, and Community," where health professionals learned about the intersection of food systems and planetary health. The conference also presented integrated solutions that mitigate food insecurity and promote sustainability to improve health outcomes. The medical school at our institution has not hosted a conference 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:	1

Score explanation: The institution is part of the Global Consortium on Climate and Health Education, which aims to "unite health professional training institutions, health societies, and regional health organizations to create a global climate-ready health sector, prepared to mobilize and lead health promotion and response in the era of climate change, while restoring the health of the planet." The medical school is also a member of Practice Greenhealth as an academic partner. Practice Greenhealth is a "membership and networking organization for health care institutions that actively identify and address climate change as a public health crisis." Finally, UMass Chan is also part of Health Care Without Harm, an international organization aiming to "facilitate initiatives to emphasize environmental responsibility and public health justice within the health care sector".

Section Total (12 out of 17)	**70.58%**

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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 has participating 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: The University of Massachusetts is a Health Promoting University that works closely with both public and private partners to build sustainable places that promote health for both humans and the planet.

At UMass Chan Medical School, second-year medical students have access to a two-week Population and Community Health Clerkship (PCHC) where they can work directly with Worcester-, Springfield-, and Massachusetts-based organizations, some of which focus on planetary and environmental health. For example, one of these two-week experiences, entitled "Climate Change and Public Health: Advocacy in Action," teaches students about the health impacts of climate change and immerses them in local climate advocacy efforts: students meet with local environmental advocacy groups (e.g., Sierra Club, Climate Code Blue, Elders Climate Action, Gas Leaks Allies, etc.) as well as Massachusetts state senators, representatives, and local lobbyists to advocate for specific green initiatives. Additionally, students in the Population Urban and Rural Health (PURCH) track can also participate in similar, two-week, climate-focused experiences, where they engage directly with ReGreen Springfield, a local organization that promotes urban tree planting and that examines and addresses environmental injustice in the Springfield community. These experiences empower students to work alongside community leaders during dedicated curriculum time and culminate in end-of-clerkship project presentations of their work to the larger medical student class.

UMass Chan also partners with (1) the Regional Environmental Council in support of a Community Garden located on the medical school's main campus and (2) 2Gether We Eat, a local

nonprofit, to develop a Wellness Farm focusing on sustainable, hydroponic, urban agriculture. While this farm was slated to open last year, progress is still being made in its development. Future plans propose that farm harvest be donated to local communities and to the university's own food pantry, the Max Baker Resource Center. This project will also include the university's very first solar array, as well as sustainable landscaping features.

In the 2024-2025 academic year, UMass is also introducing an Environmental Justice program responsible for creating opportunities to engage with local communities in the context of climate change and justice. This program will also include the development and upkeep of an online LibGuide on the library website to advertise and encourage community involvement in environmental justice issues.

Finally, during the Office of Sustainability's Earth Month 2024 events, the institution partnered with several community-based organizations, including a local elementary school, to host an electronics recycling drive, a community park clean-up, or STEM-focused workshops.

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** have not offered such community-facing courses or events. (0 points)	
Score Assigned:	3
Score explanation: The University of Massachusetts' - Amherst 2024 Earth Day tribute, "Earth Day Extravaganza," included an opportunity for students to interact with 100+ vendors, student groups, and community organizations to learn more about sustainability and related projects. UMass Chan Medical School similarly hosted a home electronics recycling collection on April 10th 2024 in honor of Earth Day, where the UMass community general public could drop off old electronics for proper disposal. The Office of Sustainability organized this drive-up event in partnership with a local liquidation company to facilitate the collection of items that are typically difficult to recycle at home, including TVs, refrigerators, and other large home items. *Part of Earth Month 2024, UMass Chan also collaborated with City View Elementary School to support students in the Worcester community in building a STEAM (science, technology, engineering, arts, math) lab.*	

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:	1

Score explanation: Institution-wide communication regarding planetary health does not occur at the University of Massachusetts. Instead, each school in the undergraduate and graduate realms is responsible for its own communication with its own students. The degree of communication also varies by the school. For example, in the School of Public Health and Health Sciences, students do not automatically receive information about sustainable healthcare as part of newsletters or school-wide communications. This detail was surprising to us given that public health and sustainability are intimately related subjects.

However, at the UMass Chan Medical School, the Office of Sustainability does send out a Sustainability Newsletter, "Growing Green," which covers news on sustainability initiatives at the medical school as well as information about upcoming events and ways to get involved with sustainability. While this newsletter exists and is sent out multiple times a year, it would be beneficial if these e-mail communications occurred at greater frequency. Given the Office of Sustainability active presence on campus, increased communication would more efficiently reflect these efforts. Nevertheless, school-wide information about sustainability also comes from other sources, such as the UMass Chan Office of Communications, which in January 2025 presented information about a new, campus-wide project focused on centralized trash collection. Additionally, the Office of Sustainability webpage, which contains an archive of the articles presented in the "Going Green" newsletter, is highly visible on the medical school's home page, making sustainability-related communications accessible to visitors.

Although sustainability communication is widespread within the medical school, the larger institution does not provide regular, organized updates on sustainability initiatives. As a result, we are awarding 1 point instead of 2.

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: To the best of our knowledge, post-graduate providers are not offered opportunities to continue learning about planetary health or sustainability.

3.5. Does your institution or its affiliated teaching hospitals have accessible educational materials for patients about environmental health exposures?	
Yes, the **medical school** or **all affiliated hospitals** have accessible educational materials for patients. (2 points)	
Some affiliated hospitals have accessible educational materials for patients. (1 point)	
No affiliated medical centres have accessible educational materials for patients. (0 points)	
Score Assigned:	1
Score explanation: The University of Massachusetts has a website dedicated to environmental and public health that includes resources on environmental protection, pest management, and more. However, this website appears to have students as the targeted audience who may be at risk of exposures, instead of patients. The medical school does not have a similar standalone website, but its associated health system does. The UMass Chan Medical School has multiple affiliations with teaching hospitals across Massachusetts. Main affiliations include UMass Memorial Health System, Baystate Health and Lahey Hospital, but clinical rotations are routinely offered at other sites including but not limited to Berkshire Health System, St. Vincent Hospital, Milford Hospital, and Cape Cod Hospital. UMass Memorial, Baystate Health, and Lahey Hospital all provide educational materials on environmental exposures within their respective patient information libraries, accessible online. For example, UMass Memorial's patient library specifically discusses mold in the environment, air pollution, carbon monoxide poisoning, lead poisoning, radon, and multiple chemical sensitivity. The asthma section of the patient library also contains a resource on occupational triggers of asthma. Baystate Health provides details for patients on pediatric lead poisoning and environmental exposures, while Lahey Hospital discusses the ties between pollution and higher mortality due to cardiovascular diseases and cancer.	

3.6. Does your institution or its affiliated teaching hospitals have accessible educational materials for patients about the health impacts of climate change?	
Yes, the **medical school** or **all 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:	1
Score explanation: The UMass Memorial System offers information on how climate changes impact health and suggestions on how to protect oneself from environmental exposures. A comprehensive patient wellness library provides information on a host of health issues that environmental changes may contribute to, as well as links to government affiliated websites for further information. The	

Baystate Medical Center patient library similarly links to a resource on climate change through the National Library of Medicine. Finally, Lahey Hospital provides an article discussing the impact of climate provisions on heart and lung health. Such information is not readily accessible on the websites of other UMass Chan affiliates, such as Milford Hospital, Berkshire Health System, or St. Vincent Hospital.

Section Total (9 out of 14)	**64.29%**

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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, **neither** the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects. (0 points)	
Score Assigned:	1

Score explanation: The University of Massachusetts School of Earth and Sustainability offers multiple grants and scholarships to both undergraduate and graduate students pursuing projects in sustainability. For example, a grant of up to $10,000 is offered each year as part of the Seed Grant Funds Program to fund research initiatives in the field of sustainability. However, while those funds are available to graduate students, that does not include medical students.

At the UMass Chan Medical School, funding is available through the Student Body Committee, which distributes funds to registered student organizations, such as the UMass Chan Climate Coalition. Using these funds, the Coalition has sponsored the creation and upkeep of an on-campus community garden.Students also have access to other resources through grant applications. While grants are not specifically designated for sustainability initiatives, students may use them for projects related to sustainability. One example of this is the MLK Jr. Semester of Service Student Award, which supports student-driven service projects in the communities that surround the UMass Worcester campus.

The UMass Chan Medical School also provides funding to each of the nine student-led "Learning Communities" (LC), which has been used to fund sustainability projects such as a "Kelley Green Week," an annual event where student teams can earn points for their LC by making sustainable choices. While this event did not run this year, the Kelley LC is working on developing another annual climate-related legacy project for the coming year.

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: Each year, the University of Massachusetts Amherst offers the Herschel G. Abbott Natural Resources Conservation Award to a graduate or undergraduate student in the Department of Environmental Conservation. The award may be made as a fellowship upon receiving it. The School of Earth and Sustainability also offers an ELEVATE fellowship supported by the National Science Foundations, wherein students conduct research on energy, equity, and climate change. Additionally, the University of Massachusetts - Lowell offers an Office of Energy Transformation Fellowship program, wherein students contribute to clean energy initiatives in Massachusetts. However, while opportunities are solely available to graduate students at the Amherst campus, and not those at the medical school.

At UMass Chan Medical School, various groups of individuals conduct research related to planetary health. Moreover, in 2024, the UMass Preventive Research Center, a joint collaboration with the Centers for Disease Control and Prevention, revised its Building Resilience and Climate Equity (BRACE) framework to better address human health needs in the context of climate health through research. However, there is no or little institutional advertisement for current or future projects to the student body at-large. Students interested in getting involved in climate-related research must seek out these opportunities independently through mentorship, the Office of Sustainability, or by connecting with the student-led Climate Coalition.

4.3. Does the institution 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 medical school, 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:	1

Score explanation: The University of Massachusetts does have a webpage with current projects and initiatives. However, while this webpage contains a staff directory, these individuals tend to be

involved in the administrative realm rather than research and mentorship. The UMass Chan Medical School does have a comprehensive website for its Office of Sustainability that is frequently updated with current sustainability projects, transportation initiatives, ways to get involved, and the institution's 2021-2026 Climate Action Plan.

4.4. Does your institution 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 medical school dedicated to planetary health or sustainability in healthcare. (2 points)
Yes, there is a student organisation at my medical school 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: The University of Massachusetts - Lowell hosts dozens of registered student groups involved in sustainability efforts. Additionally, the University of Massachusetts - Amherst also hosts the UMass Green Building Council (USGBC) Student Chapter and The Wildlife Society. At UMass Chan Medical School, the UMMS Climate Coalition is a school-funded student organization consisting of student members supported by faculty. The Coalition is dedicated to supporting planetary health and sustainability in healthcare through various student-led activities, such as the Climate Change & Action Optional Enrichment Elective and the annual clothing swap.

4.5. Is there a student liaison representing sustainability interests who serves on a department or institutional 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:	1

Score explanation: The UMass Chan Medical School Sustainability and Climate Action Plan for 2021-2026 called for the creation of three focus groups on which medical students can serve as representatives: Grounds and Transportation, Materials and Management, and Buildings and Energy. These groups actively recruit medical students interested in brainstorming ideas that support sustainable solutions in these three areas of focus. These meetings are run by the Office of Sustainability in the Facilities Department.

UMass Chan Medical School has also transitioned to a new curriculum model, VISTA, wherein a climate change curriculum taskforce has been organized to integrate climate-related topics into the

9 blocks of the preclinical medical education years. For each of these 9 blocks, one student and one faculty representative are tasked with researching and integrating current climate topics in the curriculum.

4.6. 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)	**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.	1
Wilderness or outdoors programs (e.g., that organise hiking, backpacking, kayaking, or other outings for students)	1

Score explanation:

- *The Community Garden Interest Group at UMass Chan Medical School runs a community garden located on the institution's main campus. This Garden provides fresh produce to the greater UMass community. Students are encouraged to participate in the planting and harvesting of crops. UMass Chan is also in the process of becoming a certified pollinator campus in collaboration with Bee City USA. The institution also organizes farmers' markets on campus to raise awareness about and improve access to organic agriculture and sustainable food options.*
- *The UMass Chan Climate Coalition leads several projects related to planetary health each semester that target the medical student audience. These initiatives include the Climate Health & Action Optional Enrichment Elective, a student-run speaker series focused on the intersection of healthcare and planetary health. Another initiative is the "Climate Change and Public Health: Advocacy for Action" Population and Community Health Clerkship, a curriculum-based, two-week activity offering opportunities to directly engage with multiple local branches of environmental justice organizations and with Massachusetts-based environmental justice advocacy (e.g., Climate Code Blue, Gas Leaks Allies, local branches of the Sierra Club, Elders Climate Action).*
- *As part of Earth Month 2024, the UMass Chan Diversity, Equity, and Inclusion Office collaborated with the Massachusetts Office of Energy and Environmental Affairs to organize a talk titled "Why Environmental Justice is a Public Health Issue." This event covered a brief history of*

environmental justice, state and local perspectives on the impacts of climate change, particularly for minoritized communities, and how health care practitioners can engage in environmental justice focused work to address disparities. The event was also covered in an Office of Diversity, Equity, and Inclusion blog post.

- *There are several wilderness or outdoor programs offered: The Wilderness Medicine elective teaches students how to navigate medical emergencies outdoors or in the wild, where medical or other resources may be scarce, by organizing hikes, camping and backpacking trips, and other outdoor activities.*
- *Each April, the Office of Sustainability organizes climate-focused Earth Month events in the local community, including park clean-ups, electronic recycling drives, sustainability town halls, a seed share fair, and other volunteering initiatives. Other volunteering initiatives have also been developed by students, such as Water-Safe Worcester, a program that addresses the impacts of heat on water quality by teaching individuals about water safety.*

Section Total (11 out of 15)	**73.33%**

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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 Massachusetts Office of the President does have a Sustainability Initiative that publishes reports each year on the institution's sustainability progress. The University of Massachusetts Chan Medical School has an Office of Sustainability with two full time employees: one Sustainability and Energy Manager and one Associate Director of Sustainability & Campus Services. During the summer, personnel also includes a temporary intern. The Office of Sustainability is specific to the UMass Medical School campus but does collaborate with the sustainability offices at other UMass campuses for institution-wide initiatives or Earth Week celebrations. In addition, the medical school has a Climate Change Curriculum Taskforce, established in 2023 and composed of both faculty and students. While Taskforce has not continued to meet in the subsequent academic years, there are motions in place to resume this effort in the upcoming year. Lastly, the UMass Memorial hospital system created a new role in 2023, Medical Director of Green Initiatives. This role, held by Dr. Riley McLean, is intended to lead sustainability efforts and help involve students in ongoing climate health research.	

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/medical school does **not** meet any of the requirements listed above (0 points)	
Score Assigned:	3
Score explanation: The University of Massachusetts plans to achieve 100% renewable energy for the campus energy system by 2032. This is ahead of the 2050 deadline set by the state of Massachusetts through Executive Order 594. The UMass Chan Medical School Office of Sustainability has stated a goal of reducing Scope 1 and Scope 2 greenhouse gas emissions by 15% by 2026 and has a detailed 5-year plan to achieve this. Some of these efforts, including incremental replacement of inefficient HVAC equipment, increasing use of a heat exchanger in the Lazare Research Building to reclaim excess energy, and conversion to electric chillers, are already underway. In February of 2024, the UMass Chan Office of Sustainability published a decarbonization plan detailing the pathway to reach carbon neutrality by 2050. However, since the larger institution's plan is to achieve net-zero emissions by 2032, we are awarding 3 points.	

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:	0
Score explanation: Select buildings at the institution use primarily renewable energy. For example, Crotty Hall on the Amherst campus was the first net-zero energy building on this particular campus. While various campuses have retrofitted multiple buildings to utilize less energy or more renewable energy, there is still room for improvement in this area. In 2020, UMass Chan completed a solar study to evaluate the potential for on-site renewable energy production at its main campus. The study determined that on-site renewable energy infrastructure would provide marginal economic benefits. However, the institution is exploring opportunities to align renewable energy installations with LEED certification of new construction, as well as potential off-campus installations. In this regard, a new academic research building and associated geothermal system were completed in 2024, achieving LEED Gold certification. The geothermal system provides 88% of the heat for offices, laboratories, and educational and public spaces and 50% of the cooling needs for the building. Approximately, 10% of UMass's energy requirement is purchased from the grid, of which the gridmix is greater than 23.7% renewable.	

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 institution'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:	2
Score explanation: Sustainable building practices are utilized for the construction of new buildings. For example, as mentioned, Crotty Hall became the first net-zero building on the UMass Amherst campus. In 2022, the University of Massachusetts won the 'Lead by Example' award from the Massachusetts Department of Energy Resources for its cross-campus work in decarbonization. At UMass Lowell, three buildings are certified LEED Gold and six LEED Silver. At the medical school, a new research building was completed in 2024 and is partially powered by a 75-well geothermal system. This building is LEED gold certified and contains sustainability features such as LED occupancy censored lighting and specialized solar reflective paint. The second most recently constructed building, the Albert Sherman Center, is LEED gold certified as well. The building was designed for thermal optimization and 95% of the steel used was made from recycled material. The medical school follows "LEED plus 2.0" building standards for new constructions as required by Massachusetts executive order 594. In 2024, Facilities Management published The Sustainability and Resiliency Guidelines, based on the US Green Building Council best standards, for building in partnership with the Office of Sustainability. Extensive recommissioning has been undertaken, but no buildings have been completely retrofitted at the medical school; however, the University of Massachusetts Amherst's net-zero plan does focus on renovating buildings in the future to ensure better energy efficiency.	

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:	2

Score explanation: Across its campuses, the University of Massachusetts has established incentives for sustainable transportation. At the medical school, many students live close to campus and choose to walk to school, although single occupancy vehicles remain the primary means of student transportation (61% of students). There are currently 96 electric vehicle charging ports on campus. UMass has developed a variety of incentives to encourage commuting by bike, including by providing covered bicycle parking in the parking garages and placing bike racks outside of most campus buildings. Additionally, the new bicycle registry allows cycling commuters to use locker and shower facilities. Additionally, while UMass does have a shuttle system, it is not electrified.

With respect to public transportation, the Worcester Regional Transit Authority serves the UMass campus and connects it to all major local routes in addition to providing access to the local commuter rail stop for access to Boston. There are two bus stops on campus and the university offers travel training to educate new riders on how to make use of the public transportation system. Employees can also choose to carpool, for which they are allowed to split one parking permit and access parking spots that are closer to the entrance. In 2024, this carpool parking permit program was expanded with over 70 students now taking advantage of the offering. Lastly, the student learning communities sponsor a "Go Green Challenge" one to two times per year, which encourages carpooling amongst students.

Multiple other campuses (e.g., Lowell, Amherst) have similarly implemented carpool permit options or other transportation incentives.

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 medical school. (0 points)	
Score Assigned:	1

Score explanation: Several campuses of University of Massachusetts have successful composting programs, yet those resources are unavailable to medical students because campuses are spread across the state. UMass Chan Medical School does currently have a composting program; however, at the moment, this is only available to the kitchen staff. The UMass food provider, NexDine, purchased a small composting unit in 2024, which utilizes kitchen scraps to help nourish their herb garden. A student-led project to divert animal bedding from the laboratory buildings was underway, yet this program hit a roadblock when the UMass Chan waste hauler would not deliver waste to the corporation that was willing to accept the bedding because the corporation's space was leased and not owned.

UMass Chan is likely switching waste hauling companies in 2025, which may open new opportunities for waste diversion. The new waste management company may also charge increased rates for elevated levels of contamination, which would incentivize improved recycling efforts; the institution's current contamination rate is 13%. The school does have a recycling program, and 30% of our waste as a university is single stream recycling, of which a majority comes from the Albert Sherman Center building. The Office of Sustainability facilitated a tour of our local

recycling plant in 2024 to help community members understand the life cycle of our recyclables. Lastly, there is an ongoing effort to consolidate our trash bins with a goal of reducing the number of trash bins by two thirds.

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 **no** sustainability guidelines for food and beverages. (0 points)	
Score Assigned:	3
Score explanation: Sustainable food purchasing requirements are included in the contract language with the UMass food provider, NexDine. Specific language includes "maximizing the purchase and utilization of foods within a 200-mile radius of Worcester, minimizing waste, and prioritizing the use of plant-based foods". NexDine filters cooking oil to reduce overall usage by 35%. The on-campus Albert Sherman Center dining facility is the only Green Certified Restaurant in the Worcester area and hosts "Meatless Mondays" weekly. In the summer of 2024, UMass offered community supported agriculture (CSA) shares to the community, which resulted in 70+ shares being distributed. This CSA initiative is being discontinued in 2025, yet there will be a weekly farmer's market held on campus in exchange. UMass' main campus also hosts a student-run Community Garden ,which was expanded in 2024 to include blueberry bushes and a pollinator garden. The student food pantry also partners with local farms to provide fresh, local produce to students.	

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 UMass Sustainability Council is collaborating with the Unified Procurement Services Team to receive better data to measure success in procuring more environmentally responsible supplies and resources across all UMass campuses using the AASHE STARS data framework. In the 2021-2026 Sustainability and Climate plan, the university set a goal to implement environmentally preferable purchasing guides and standards. To achieve this, a series of strategies are outlined to integrate sustainability language into purchasing documents, support sustainable lab materials purchasing, procuring electric vehicles, and increase partnership with sustainability purchasing organizations. However, UMass currently has a centralized purchasing model meaning that larger purchases have to go through the president's office. The Strategic Climate Energy and Sustainability Working Group, which involves a liaison from every UMass school, works to create an environmental standard at the level of the president's office. At this time, UMass Chan is encouraging more sustainable purchases throughout the IT department and has been an EPEAT certified buyer for the past 2 years. In addition to more sustainable electronics, UMass purchases eco labelled janitorial supplies and majority recycled paper products.	

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: There are currently no sustainability requirements or guidelines for events hosted at or through the medical school. The student climate health interest group, UMass Chan Climate Coalition, developed a guide to sustainable events in 2025. While this guide is available to all UMass Chan community members, there are no current incentives to adhere to the recommendations.	

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 the institution to make lab spaces more sustainable. (0 points)	
Score Assigned:	1

Score explanation: Across campuses, such initiatives exist at the University of Massachusetts. UMass Chan does have a chemical exchange program targeting unopened chemicals that are still in good condition to reduce waste of unused chemicals. Additionally, the Office of Sustainability has an ongoing "shut the sash" campaign that encourages lab members to lower the sashes of fume hoods to reduce energy usage. UMass Chan extends support for sustainable procurement practices of laboratory chemicals, of ice supplies, electronics, and other goods. The following supports are also made available to labs: green labs tips flyer (detailing which items can be recycled), free filter cleanings for -80 freezers, encouragement to place -80 freezer maps on the door to minimize open door time, and increasing use of a heat exchanger in the Lazare Research Building to reclaim excess energy from labs.

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: In 2016, the University of Massachusetts system became the first major public university to divest from direct holdings of fossil fuels. At the time, UMass made a commitment to not only divest but also make additional commitments to clean energy, which to the best of our knowledge has been satisfied and is anticipated to be satisfied given various campuses' plans to achieve net-zero emissions in the next 20 years. We are categorizing this as a partial divestment given that indirect endowment holdings or endowment holdings not directly held by UMass may still include investment in fossil fuels.	

Section Total (20 out of 32)	**62.5%**

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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 University of Massachusetts Chan Medical School

The following table presents the individual section grades and overall institutional grade for the **University of Massachusetts Chan Medical School** on this medical-school-specific Planetary Health Report Card.

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(46/72) x 100 = 63.89%	B-
Interdisciplinary Research (17.5%)	(12/17) x 100 = 70.59%	B
Community Outreach and Advocacy (17.5%)	(9/14) x 100 = 64.29%	B-
Support for Student-led Planetary Health Initiatives (17.5%)	(11/15) x 100 = 73.33%	B
Campus Sustainability (17.5%)	(20/32) x 100 = 62.5%	B-
Institutional Grade	**(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = F%**	**B**

Report Card Trends

Section Overview

This graph demonstrates trends in overall and section grades for the years in which The University of Massachusetts Chan Medical School has participated in the Planetary Health Report Card initiative.