



Planetary Health Report Card:

University of Michigan Medical School



2021-2022 Contributing Team:

- Students: Navjit Girgla, Maximilian Wagner, Jacqueline Lewy, Payge Barnard, Katherine Foug, Jessie Dalman, Evelyn Matei, Claire Ford, Emmanuel Mgboji, Christian Mackey MPH*, Natalie Baxter, Naomi Parker, Colby Foster
- *Primary Contact: Christian Mackey MPH, cnmackey@med.umich.edu

Summary of Findings

Overall	C+
<u>Curriculum</u>	C-
<ul style="list-style-type: none"> University of Michigan Medical School (UMMS) includes planetary health in the elective curriculum. However, climate change is only addressed in scattered lectures and discussions in the core curriculum. Recommendations: The role of planetary health can be more effectively integrated into the systems-based lectures throughout the first year core curriculum, or in intensive weeks during the 2nd and 3rd years. Discussions with and between curriculum leads can help facilitate these future improvements. 	
<u>Interdisciplinary Research</u>	C+
<ul style="list-style-type: none"> UMMS is peripherally involved in planetary health research. There are no faculty members in the medical school with primary appointments to be engaged in planetary health research, however faculty at the medical school are connected to institutional planetary health research. Recommendations: UMMS should incorporate research on planetary health topics into its priorities in existing medical departments or consider creating a new research department on the subject altogether. The medical school should also consider joining a global alliance network for planetary health research. 	
<u>Community Outreach and Advocacy</u>	D+
<ul style="list-style-type: none"> UMMS has yet to do much community outreach around planetary health. Overall there is a lack of structure around how much outreach to do, where to do it, and in what ways. Recommendations: There are many things that the school may consider in improving their outreach and advocacy as it pertains to planetary health. This includes; establishing community partnerships relating to planetary health, adding climate change related topics to patient education resources, establishing more training opportunities for providers in planetary health, and utilizing newsletters in the health system to more regularly communicate about climate change. 	
<u>Support for Student-Led Initiatives</u>	A-
<ul style="list-style-type: none"> UMMS supports students dedicated to planetary health. The student organization White Coats for Planetary Health receives faculty and institutional support. By enabling students to seek opportunities available through the broader institution, the school also encourages students to be engaged in co-curricular projects and research. Recommendations: The school could reduce barriers to information access, for example, by composing a list of sustainability mentors and funding resources available through the school and institution. 	
<u>Campus Sustainability</u>	B
<ul style="list-style-type: none"> UMMS has made good progress in sustainable operations and it has also been connecting well with institution-wide resources and programs. The school has also divested from fossil fuels and established robust transportation alternatives. Recommendations: The soon-to-be created committee on carbon neutrality for the medical school can develop concrete goals, which should include utilizing a greater proportion of sustainable energy and creating procurement policies that better incentivise more sustainable choices. 	

Statement of Purpose

Planetary health is human health.

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

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

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

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the *Planetary Health Alliance* as “a solutions-oriented, transdisciplinary field and social movement focused on analyzing and addressing the impacts of human disruptions to Earth’s natural systems on human health and all life on Earth”. For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional ‘environmental health’ examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term “planetary health” to satisfy the metric.
- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:
 1. Describe how the environment and human health interact at different levels.
 2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
 3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.
- **Medical School vs. Institution:** When “medical school” is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (for example, undergraduate departments (USA), other related departments eg Public Health, Population Health departments). In contrast, when “institution” is specified in the report card, we are referring to the university more broadly. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is specifically targeted for medical students, can meet this metric.
- **Environmental history (Metric 19 in curriculum section):** This is a series of questions

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

- **Elective:** The word “elective” refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.
- **Clerkship:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations or placements.

Other considerations:

- If there are more than one “tracks” at your medical school 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 example).

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

Planetary Health Curriculum

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

Curriculum: General

1. Did your medical school offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does not have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a lecture on planetary health.
0	No, the medical school has not offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
EMERGMED: Climate Change and Human Health 2022 is an elective course offered to third and fourth year medical students. The course introduces students to the topic of climate change, the current and predicted impact on human health, and opportunities for mitigation of and adaptation to these changes.	

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

The University of Michigan Medical School offers an elective course EMERGMED: Climate Change and Human Health to third- and fourth-year medical students. A journal club is conducted through the elective where students discuss important climate events and their impacts on human health. The 1995 Chicago heat disaster is the topic of one of the journal club sessions. Additionally, the course has a required lecture as part of its curriculum on Heat-related Disease which is pre-recorded by Dr. Jeremy Hoffman from the Virginia Commonwealth University. This would be given 1 point because this material is exclusive to the elective coursework.

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

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

The University of Michigan Medical School offers an elective course EMERGMED: Climate Change and Human Health to third- and fourth-year medical students. The students taking this course will have a lecture by Drs. Lori and Robert Byron titled Extreme events and Rural Medicine. Students also have the opportunity to participate in an “Extreme Heat-related illness” journal club based on articles related to health impacts from extreme heat conditions. This would be awarded 1 point because these opportunities are found within the elective coursework.

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

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

As part of the Scientific Trunk core curriculum, specifically during their Foundations of Medicine III block which covers infectious diseases, first-year students at the University of Michigan Medical School are taught about how climate change is increasing human-animal contacts which increases the spread of viral factors. This pattern is addressed multiple times in the ID lectures; however, climate change is brought up only briefly. Because of this, 2 points are awarded for this section.

5. Does your medical school curriculum address the respiratory health effects of climate change

and air pollution?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p>During the University of Michigan Medical School’s first-year curriculum, students learn about respiratory health during their Vital Functions I block. The roles of climate change and air pollution in the onset of several respiratory illnesses are briefly discussed in a variety of lectures. Examples of lectures are titled Chronic Obstructive Pulmonary Disease, Asthma, Mechanical Ventilation, and Airway Pharmacology which are given by professors in Internal Medicine. Respiratory health effects of climate change in these lectures are covered briefly along with other factors of onset, which is why this section was awarded 2 points.</p>	

6. Does your medical school curriculum address the cardiovascular health effects of climate change, including increased heat?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p>The University of Michigan Medical School offers an elective course EMERGMED: Climate Change and Human Health to third- and fourth-year medical students. The curriculum in this elective contains material about topics of planetary health as it relates to cardiovascular health. However, teaching about this topic may be improved in the future by dedicating focused lecture time towards it, as of right now this information is interspaced in different lectures.</p>	

7. Does your medical school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

The University of Michigan Medical School does not directly address the neuropsychological effects of climate change in the core curriculum for first- and second- year students. Likewise, the elective course EMERGMED: Climate Change and Human Health does not cover such material in its coursework, which is why this section was awarded 0 points.

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

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

The University of Michigan Medical School does not directly address the effects of climate change on food and water security, however it is addressed in the elective course EMERGMED: Climate Change and Human Health.

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

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

The topic of outsized impacts on marginalized populations is thoroughly explored in the elective course EMERGMED: Climate Change and Human Health 2022. In the second week, there is both lecture and discussion on health disparities, environmental justice, and ethics. In the third week, there is an additional discussion on “environmental racism” and health disparities as a result of climate change. The note of outsized impacts in marginalized populations was found in a research paper associated with Dermatology topics in the core curriculum, but not enough to warrant a shift to a “2” rating. No additional information was found explicitly throughout the core curriculum.

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

3	This topic was explored in depth by the core curriculum.
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2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p>One of the primary goals of the elective course EMERGMED: Climate Change and Human Health 2022 is to “Understand the inequitable distribution of health impacts as a result of climate change, and evaluate strategies to advance environmental justice and equity.” Paired with Question 9, Week 2 and Week 3 of the elective course both address the unequal regional health impacts of climate change on an international level. This is done through pre-work readings addressing these international disparities, lectures and guided discussions.</p>	

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

11. Does your medical school curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p>First-year medical students at the University of Michigan Medical School take a required course part of their core curriculum titled “Doctoring” during which they learn material and skills pertaining to patient care. In the coursework for this class, students have a week where the curriculum covers “Systemic Racism and Social History” where they learn about teratogenic compounds and substances that are spread by factories and industries and how these dangerous compounds can impact reproductive health for those subjected to such living conditions. Because the class covers this topic for a single weekly session, 2 points have been awarded for this section.</p>	

12. Does your medical school curriculum address important human-caused environmental threats that are relevant to the university’s surrounding community?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.

First-year medical students at the University of Michigan Medical School take a required course as part of their core curriculum titled "Doctoring" during which they learn material and skills pertaining to patient care. Week 4 of the course touches on the subject of the impact of systemic racism, and one of the lectures includes a link to an article on one of Michigan's largest climate change and environmental injustices in history, the Flint Water Crisis. Additionally, the introductory nutrition lecture given during the first-year gastrointestinal/nutrition sequence highlights climate change and the water crisis in Flint, albeit briefly. More specific and in depth discussion around local effects of climate change are discussed in the elective course EMERGMED: Climate Change and Human Health 2022; The course touches on local effects of climate change, such as an increase in Michigan physicians treating Lyme disease and cases of extreme heat in urban centers such as Detroit. Additionally, Dr. Nan Barbas, a University of Michigan neurologist and active climate activists shared her local involvement regarding climate change in Michigan and its implications for future practice for medical students.

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

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

Within the EMERGMED: Climate Change and Human Health 2022 Elective Course, the pre-work labeled "Indigenous Perspectives on Planetary Health – Dr. Nicole Redvers" provides support for indigenous knowledge. Throughout this video, along with the lecture and discussion that follow, the importance of the stories from indigenous populations and their perspectives are underscored. In addition to the elective, there has been an optional discussion run by Dr. Vidya Ramanathan that focuses on physicians as human rights advocates. At one point in the discussion, the importance of anecdotes is highlighted. One of these anecdotes addressed the impacts of Climate Change on Migration families and the new perspective that it gives to physicians, as well as the general public.

14. Does your medical school curriculum address the outsized impact of anthropogenic environmental toxins on marginalized populations such as those with low SES, women, communities of color, children, homeless populations, Indigenous populations, and older adults?

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

One of the primary goals of the elective course EMERGMED: Climate Change and Human Health 2022 is to “Explain the basic science of climate change and discuss the contribution of human activity to global environmental change.” In this light, the course ensures an understanding of anthropogenic environmental toxins such as extreme heats and respiratory toxins, and then how they are distributed across domestic and international populations. Most of these are addressed throughout the second week of classes where these toxins are introduced and then integrated into the topics of environmental justice, racism, and ethics.

Curriculum: Sustainability

15. Does your medical school curriculum address the environmental and health co-benefits of a plant-based diet?

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

In a lecture on Intestinal Physiology, dietary proteins are discussed. The lecturer briefly mentions that plant-based proteins are recommended for many health-related reasons as an alternative to fattier animal-based sources. The planetary health-related benefits of plant-based proteins are also mentioned briefly. However, these points are not further detailed in the lecture slides or in the recorded audio for the presentation.

16. Does your medical school curriculum address the carbon footprint of healthcare systems?

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

UMMS does not educate medical students of the carbon footprint of the healthcare system in the core curriculum. EMERGMED: Climate Change and Human Health is an elective offered to 3rd and 4th year medical students. It does broadly discuss the carbon footprint of the healthcare system without any focused lectures or reading on the topic. Additionally, UMMS offers 8 different Paths of Excellence, a focused track for students throughout their medical school experience. The Global Health and Disparities path does include a teaching session on the carbon footprint in healthcare.

17. Does your medical school curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (1 point each)	
1	Waste production within the healthcare system and strategies for reducing waste in clinical activities, such as in the operating room
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anaesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally anaesthetic gas options with reduced greenhouse gas emissions
1	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively teaching on deprescribing where possible and its environmental and health co-benefits would fulfill this metric.
1	The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes for obesity. This is commonly known as social prescribing in the UK.
1	The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment
A number of these above topics are discussed in elective content at the medical school, but none are covered in <u>core</u> the curriculum.	

Curriculum: Clinical Applications

18. In training for patient encounters, does your medical school's curriculum introduce strategies to have conversations with patients about the health effects of climate change?	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework.
0	No, there are not strategies introduced for having conversations with patients about climate change
UMMS students are not taught strategies to discuss the health effects of climate change during their core pre-clinical or clinical coursework. The medical school does offer an elective on planetary health (EMERGMED: Climate Change and Human Health), which does teach strategies for bringing dialogue about climate change into the clinical space. This class is available for 3rd and 4th year students, and as an elective, students are only exposed to this teaching if they actively choose to take the class.	

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

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

UMMS first-year students participate in a longitudinal Doctoring course, which has a session titled "Abdominal History, Immigration Health Care, and Working with an Interpreter." In this session, students learn how to interview a patient based on a history of a migrant worker with potential exposures to extreme temperatures and pesticides contributing to an abdominal chief concern. Through this class, students learn about the intersections of environmental health, immigration/migration, health care access, and associated medical concerns.

Curriculum: Administrative Support for Planetary Health

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

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

The University of Michigan Medical School is currently making minor efforts to improve the education of planetary health education. Our infectious disease curriculum leaders as well as other physicians and faculty that focus on global health and disparities are working to increase student exposure to sustainability healthcare through coursework and research. Additionally, our Interim Dean of Medical School Education has expressed willingness to integrate climate education into the curriculum and working with students to find devoted curricular time for those lessons.

21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the core curriculum?

6	Planetary health/ESH topics are well integrated into the core medical school curriculum.
4	Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.

2	Planetary health/ESH is not integrated and is primarily addressed in (a) standalone lecture(s).
0	There is minimal/no education for sustainable healthcare.
<p>The farthest depth of education on Planetary Health/ESH exists in the "Doctoring" course work and with topics such as infectious disease. However, within these topics, they are not extensively addressed to the threshold where they would be considered "appropriately integrated". Almost all other topics regarding planetary health are only addressed in elective coursework/stand alone lectures.</p>	

<p>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?</p>	
1	Yes, the medical school has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	No, the medical school does not have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.
<p>No, the University of Michigan Medical School does not 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 curriculum</p>	

Section Total (x out of 69)	30
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Are there additional curriculum resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Interdisciplinary Research

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

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Medicine who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the institution, but none associated with the medical school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or medical school at this time.
<p>While there are a number of researchers in institutional departments (such as the School of Public Health and the School for Environment and Sustainability) engaged in research related to planetary health, environmental health, and toxicology, there is no active research being done within medical school departments on planetary health. There are some researchers who have joint appointments with the medical school that conduct research tangentially related to planetary health (such as the Michigan Microbiome project), however their primary departments are not in the medical school. Furthermore, there are a number of microbiology and immunology researchers at the medical school whose work on infectious disease is related to planetary health, but this is not a focus explicitly stated by the department.</p>	

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?	
3	There is at least one dedicated department or institute for interdisciplinary planetary health research.
2	There is not currently a department or institute for interdisciplinary planetary health research, but there are plans to open one in the next 3 years.
1	There is an Occupational and Environmental Health department, but no interdisciplinary department or institute for planetary health research.

0	There is no dedicated department or institute.
<p>Currently, the University of Michigan Medical School does not have a dedicated department or institute to planetary or environmental health research, however faculty at the medical school are leaders in the Center for Global Health Equity, a newer group of interdisciplinary researchers at the broader institution who focus on understanding and addressing global needs with a large focus on understanding environmental and climate factors related to health. Additionally, the School of Public Health (part of the main institution) does have a Department of Environmental Health Sciences where there are a number of researchers studying the impact of environmental toxins and exposure on health. Furthermore, the Office of Research on the main campus is planning a “focus group” to study the impact of climate change on health.</p>	

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.
1	No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.
0	There is no process, and no efforts to create such a process.
<p>There are no formal processes at the University of Michigan Medical School in which public feedback can guide the school’s research agenda. In corresponding with the Director for Community Health Services at Michigan Medicine, she remarked the following about the Michigan Medicine health system (affiliated but not the same identity as the medical school):</p> <p>“Climate Change is one of our emerging SDOH from our Washtenaw County Community Health Needs Assessment (CHNA). As part of our process (which includes our partners at Saint Joe Ann Arbor and Saint Joe Chelsea), we get feedback from the community using a variety ways, such as key stakeholder interviews, focus groups and prior to the pandemic person on the street interviews to get their thoughts on health and what they feel are the most pressing social and environmental issues that impact health.</p> <p>Non-profit hospitals and health systems are required to conduct a community health needs assessment every three years as mandated by the Affordable Care Act. As we are part of Michigan Medicine which consists of the Medical School and UM Health (our hospitals and health centers) these data are available for use by the medical school. I hope this information is helpful.”</p> <p>This response indicates that there is a theoretical process for which community members may impact the health system’s priorities, but the process is not seeking out suggestions for climate health specifically and do not necessarily apply to the actual Medical School</p>	

4. Does your institution have a planetary health website that centralizes ongoing and past research related to health and the environment?

3	There is an easy-to-use, adequately comprehensive website that centralizes various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that attempts to centralize various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The institution has an Office of Sustainability website that includes some resources related to health and the environment.
0	There is no website.

The [Graham Sustainability Institute](#) and [Planet Blue](#) (a university-wide sustainability initiative) at the University of Michigan both have comprehensive websites with information on the University's sustainability goals, fellowships for students and researchers, a database of sustainability researchers within the university, and a list of events related to climate change and sustainability.

5. Has your institution recently hosted a conference or symposium on topics related to planetary health?

4	Yes, the medical school has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the institution has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the institution has hosted a conference on topics related to planetary health in the past three years.
1	The institution has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the institution has not hosted a conference on topics related to planetary health in the past three years.

The wider institution hosts a yearly conference called the Michigan University-Wide Sustainability and Environment conference, which includes presentations on environmental justice, sustainable food systems, and planetary health from researchers, faculty, and departments all around the university. However, departments from the medical school do not co-sponsor or typically have researchers give presentations at this conference. Neither the medical school nor the institution have hosted conferences centered specifically around planetary health, but the [MUSE conference](#) has consistently included presentations about climate health in past years.

6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health or ESH organization
0	No, the medical school is not a member of such an organization
The medical school is not a member of an organization such as the Planetary Health Alliance or the Global Consortium on Climate and Health Education.	

Section Total (x out of 17)	10
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Community Outreach and Advocacy

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

1. Does your medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organizations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organization to promote planetary and environmental health.
1	The institution partners with community organizations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p>University of Michigan Medical School does not currently have any partnerships with community organizations to promote environmental health. However, there are meaningful partnerships at the institutional level. One example is the university's partnership with the Detroit Urban Research Center. This organization works to identify and address problems affecting the health of residents in Detroit which includes forming direct partnerships between University of Michigan faculty and staff with Detroit-based planetary health groups to address environmental impacts on health.</p>	

2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The medical school offers community-facing courses or events at least once every year.
2	The medical school offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.
1	The institution has offered community-facing courses or events, but the medical school was not involved in planning those courses or events.
0	The medical school has not offered such community-facing courses or events.

The University of Michigan Medical School currently offers lectures to students and faculty on planetary health but does not have community-facing events. This includes the most recent such event held 02/18/2022 titled “*You Can’t Drink Oil: Pipelines and their Impact on Climate Change, Human Health, and Environmental Justice*”. Although not stemming from the medical school, the institution at large has offered community-facing lecture series focused on planetary health and sustainability. The Michigan Medicine health system also has articles and information published online for patients about planetary health and the impacts on patient health. The following are examples of other community facing lectures focusing on planetary health and offered by the university: [“Advancing Climate Justice and Environmental Health”](#) , [“Food Literacy For All”](#) , [The Wege Lecture Series](#).

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

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

The University of Michigan Medical School does not have a system in place for regular communication about planetary health and/or sustainable healthcare. Through the MHOME student community arm of the medical school administration, students receive weekly emails that occasionally include information about community events that pertain to topics in climate change and planetary health. This is however not a regular or guaranteed item in these newsletters. Topics of planetary health may be discussed in emails from the University of Michigan Medical School to students involved in the Global Health and Disparities Pathway, however this is a track that students elect to take and the majority of students enrolled are not in this track. Students training at and faculty that work at Michigan Medicine health system receive regular emails from the Michigan Medicine hospital system. These emails include various stories highlighting patients, providers, or upcoming events. Occasionally there is an event or article included in the email that focuses on planetary health and sustainability. This weekly communication is created by the university hospital at large and is not written directly by the medical school.

4. Does the institution or main affiliated hospital trust engage in professional education activities targeting individuals post graduation with the aim of ensuring their knowledge and skills in planetary health and sustainable healthcare remain up to date during their professional career?

2	Yes, the institution or main affiliated hospital trust offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the institution or main affiliated hospital trust offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers

0	There are no such accessible courses for post-graduate providers
<p>The University of Michigan Medical School does not have an extensive system in place that aims to educate graduates on planetary health. However, the university does occasionally offer guest lecturer series and/or mini symposiums that seek to educate on climate change and health. These are open to all students including post-graduates. However, there was no such event held in the last year.</p>	

5. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about environmental health exposures?	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated medical centers have accessible educational materials for patients.
<p>The University of Michigan Medicine Medical School does have accessible educational material for patients about environmental health exposures. One example found on the main Michigan Medicine website is accessible to everyone: “Fast Facts: Air Pollution & Brain Health”. Every medical student rotates through the Ann Arbor VA Hospital which does have similar educational materials available online through the Veterans Affairs website.</p> <p>It is important to note here, educational pieces can be difficult to find through the websites and are largely focused on specific health concerns (narrow in scope). So while this qualifies as a score of 2, there is room for improvement of visibility and breadth of covered topics. The current way these resources are organized could affect how many patients and providers will actually locate and utilize these resources.</p>	

6. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about climate change and health impacts?	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated hospitals have accessible educational materials for patients.
<p>Michigan Medicine does not have extensive accessible educational materials for patients on climate change. In the patient education resource bank referenced in Item 5 of this section of the report card, there are no results for queries for “Climate Change”.</p>	

Section Total (x out of 14)	5
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Support for Student-Led Planetary Health Initiatives

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

1. Does your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the institution <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum.
1	The medical school encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, but there is no student funding available and there is no requirement to participate.
0	No, the institution does not offer opportunities or support for sustainability initiatives or QI projects.

The University of Michigan as an institution has a number of major [grant options for students](#) to apply to in order to receive funding for projects related to sustainability. Medical students are allowed to submit applications to these grants. Planet Blue Student Innovation Fund grants and the Dow Sustainability Award can award up to \$50,000, while the Mini-Grants for Food Justice and the Social and Environmental Sustainability Grants can award up to \$1000 and \$2500 respectively. In addition, all medical students are required to complete a [Capstone for Impact](#) project as part of the core curriculum that is not required to be about quality improvement but projects that students complete often relate to it. The University of Michigan Medical School has specific medical student exclusive funding opportunities for these projects that include various dollar amounts.

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The institution has a specific research program or fellowship for students interested in doing planetary health/sustainable healthcare research.
1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare but these require student initiative to seek these out and carry them out in their spare time.
0	There are no opportunities for students to engage in planetary health/sustainable healthcare research.

The University of Michigan Medical School encourages students to pursue research in topics they're interested in and has a number of student research funding avenues open to any kind of student research, however none are specific to planetary health or sustainable health care. For students who do engage in this kind of research, they have to take initiative to seek out and carry them out in their spare time. For example, The University of Michigan as an institution allows medical students to apply to the [DOW Sustainability Fellowship](#), which may place students in a project related to planetary health or sustainable health care, however that project may not be based in research and may be in other areas, like community advocacy.

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

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

The University of Michigan Medical School has a student gateway, a website with relevant information for students pertaining to curriculum, professional development, learner wellbeing, and other areas relevant to students. This website, however, lacks specific information about planetary health and sustainable healthcare activities. This website also lacks a directory of possible mentors within the medical school that can be sorted by research area, so there is no way to search for mentors in planetary health without visiting each faculty page. The only web pages for medical students with information in this field is the collection of student Capstone projects, in which some are pertaining to planetary health or sustainable healthcare, but these are posted after student graduation and are not sortable by a topic area. Additionally, faculty members are included in a directory available to the public that students can use to look at potential mentors with similar interests, however each page has to be opened separately and cannot be sorted by or keyword searched by interest. As mentioned in Section 2 Item 4 of this report card, there is an institution-level directory that may meet this criteria, however the graders do not want to award any points for that since there is no information from any medical school resource to that outside directory. In other words, students who are interested in getting involved in this field have to do significantly more work to uncover opportunities available to them than students who seek opportunities in fields more traditionally associated with medical science.

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

2	Yes, there is a student organization with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it lacks faculty support.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.
<p>The White Coats for Planetary Health (WCPH) at the University of Michigan Medical School is an affiliate organization of Medical Students for a Sustainable Future. WCPH is a student-led group with monthly advising meetings with faculty member Dr. Brent Williams and has regular contact with other Deans and professors in the medical school.</p>	

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?	
1	Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.
0	No, there is no such student representative.
<p>There is no current student representative that serves on a medical school decision-making council or committee. This was confirmed by student council members at the medical school. This will change however starting in April 2022 when a student representative will start serving on the soon-to-be-started University of Michigan Medical School Carbon Neutrality Council. At the Institutional level there exists a body called the Student Sustainability Coalition that provides this kind of role for various offices at the institutional level, but they have no formal appointment to a committee or decision-making power. They can influence student-lead initiatives by awarding grants, but do not have direct power in decision-making bodies at the institution level.</p>	

6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	
1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.

1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.
1	Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students)

While there is no active garden run exclusively by medical students, they do have the option to be involved in several University of Michigan associated gardens and farms, including the [Campus Farm](#) and the garden at the School of Public Health.

Despite events being significantly reduced due to the COVID 19 pandemic, the University of Michigan Medical School has hosted speakers in the past year to discuss planetary health and climate change. One example of this is the 3-part series of Planetary Health at Every Scale, hosted by the Global Health and Disparities Pathway starting February 2022.

First year medical students attend an event every year to discuss the Flint Water Crisis with victims from the affected communities. These events include health professionals in the area as well as individuals who lived in Flint during the height of the poisoning event, and professionals involved in the clean up. This is a major environmental justice topic in the local area.

The University of Michigan hosts a permanent art installation titled "The Remnants of Progress" in the Dana Commons building. This past year, there was also an event titled "Stamps @ Home: Sustainability in Art and Design" which included a panel of artists and designers who discussed the potential for works of art to contribute to work in climate change. These are not directly hosted by the medical school, but they are accessible to medical students

The University of Michigan as an institution has a number of volunteer opportunities for students to engage with climate change in their community. One example is the Planet Blue Ambassador Program, in which student volunteers learn about climate advocacy and are encouraged to utilize resources to make improvements in sustainability to the spaces in their college and homes. This program also serves as a networking medium through which participants can share ideas and meet potential collaborators.

The University of Michigan Medical School puts on a Wilderness Medicine Elective for students which involves learning survival medicine skills, a canoe trip, and other workshops to teach students about engaging with the world and environment.

Section Total (x out of 15)	12
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Are there additional student-led initiative resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Campus Sustainability

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

1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of medical school and/or hospital sustainability.
1	There are no salaried sustainability staff, but there is a sustainability task force or committee
0	There are no staff members or task force responsible for overseeing campus sustainability
<p>Established in 2009, the University of Michigan has an Office of Campus Sustainability (OCS) which is a department of Facilities and Operations, and part of the larger university-wide Planet Blue Campus. It employs a full-time staff of 20 people, two of which are dedicated full-time to service areas where medical school operations take place. There is also a Certified Energy Manager on staff as part of the facilities team that serves medical school buildings. These roles are focused on energy use and collaborate with other facilities staff on sustainability-related work. These individuals may engage in sustainable work for the medical school, but it is not the primary purpose of their employment to work on sustainability projects.</p>	

2. How ambitious is your medical school/institution’s plan to reduce its own carbon footprint?	
4	The institution has a stated goal of carbon neutrality by 2030 or earlier and the medical school / institution has a well-defined and adequate plan in place to achieve this goal.
3	Yes, there is a stated carbon neutrality goal by at least 2040 and the medical school/institution has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal by at least 2040, but the medical school/institution has not created a plan to reach that goal or the plan is inadequate.
1	There is a CO2 emission reduction goal, but it is not one of carbon neutrality.

0	There is no stated goal for reduction of CO2 emissions.
<p>In 2021, the University of Michigan completed the final report and recommendations for the President’s Commission on Carbon Neutrality. Within this report, the University of Michigan as an Institution has a stated goal of reaching carbon neutrality by 2025 for both scope 1 and scope 2 emissions. Furthermore, the University of Michigan aims to be carbon neutral by 2025. See page 52 of the President’s Commission on Carbon Neutrality Final Report.</p> <p>Currently, there is not a well-defined plan in place to achieve this goal. However, medical school leadership is working to organize a sustainability council that will define next steps toward carbon neutrality.</p>	

3. Do buildings/infrastructure used by the medical school for teaching (not including the hospital) utilize renewable energy?	
3	Yes medical school buildings are 100% powered by renewable energy
2	Medical school buildings source >80% of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source >20% of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.
<p>In 2021, the University of Michigan as an institution signed a power purchase agreement (PPA) through DTE’s MIGreenPower program that uses renewable wind energy. This REC will cover 40-50% of the Ann Arbor campus’ (includes the medical school) current annual electricity consumption. See page 73 of the President’s Commission on Carbon Neutrality Final Report.</p> <p>The teaching portion of the University of Michigan’s medical school includes Taubman Health Sciences Library, Med Sci I, Med Sci II, the North Campus Research Complex, and the Biomedical Science Research Building. Based on energy usages of electric, steam, and natural gas, together those five buildings use 25.52% renewable energy. Looking forward, the east medical campus including the medical school is projected to transition to geothermal heating and cooling power in years 15-20 of a projected 25 year process for the University of Michigan. See page 67 of the President’s Commission on Carbon Neutrality Final Report.</p> <p>Building Energy Data: https://ocs.umich.edu/resources/sustainability-data/building-energy-data/</p>	

4. Are sustainable building practices utilized for new and old buildings on the medical school campus, with design and construction of new buildings and remodeling of old buildings conforming to a published sustainability rating system or building code/guideline?
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3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the majority of old buildings have been retrofitted to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have not been retrofitted.
1	Sustainable building practices are inadequately or incompletely implemented for new buildings.
0	Sustainability is not considered in the construction of new buildings.

Michigan Medicine [requires](#) all new buildings, additions, and construction projects with a budget of \$10,000,000 or more to meet Leadership in Energy and Environmental Design (LEED) Silver level.

Additionally, all new buildings are [required](#) to have low or no volatile organic compounds in their carpeting, paint, flooring, adhesives, and finishes as well as no polyvinyl chloride in their wall coverings. Vinyl wall protections/corner guards contain no persistent bioaccumulative toxins and are recyclable.

For current medical school buildings, the University of Michigan has LEED gold standard certifications for the Taubman Health Sciences Library. Medical Science Buildings I and II, the North Campus Research Complex, and the Biomedical Science Research Building are not LEED certified. Although they are not currently being updated to be LEED certified, they do have smaller energy conservation updates happening continuously. See up to date data on energy conservation measures [here](#).

In addition, there are preliminary plans to develop a medical school carbon neutrality and sustainability council that will work to figure out additional ways to make old buildings more sustainable.

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

On the University of Michigan’s Ann Arbor campus, there is the Blue Bus fleet which provides free public transportation for all students, staff, and faculty seven days a week. This bus system has stops at different points on each of the sides of the major hospital, as well as routes that reach the VA hospital and several that stop at the health sciences student library. This fleet is projected to be entirely electric by 2035. See page 67 of the [President’s Commission on Carbon Neutrality Final Report](#).

[The Ride](#) is an Ann Arbor area bus system that is also available for free to students with a valid M-card. U of M also partners with Zipcar to provide car sharing access at the Ann Arbor campus. There are fifteen electric vehicle charging stations available for use by students, and in 2012 the University of Michigan was named a “Bike Friendly University” by the League of American Bicyclists with over 8,500 bike parking spaces on the Ann Arbor campus.

There are also [two rideshare programs](#) available to and encouraged for students at the University of Michigan. AATA iShareARide is offered through the Ann Arbor Transportation Authority, and Vanpool is available for students in the clinical trunk.

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

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

The medical school has both compost and recycling programs accessible to students and faculty. Compost is available in the medical school library and university hospital patient food operations. Conventional recycling is also available.

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?

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

The medical school can consult individuals on sustainable food and beverage procurement, but one has to specifically seek that out with administrators. Medical students are working with the medical school's events coordinator to enhance food and beverage sustainability. In addition, the President's Commission on Carbon Neutrality established a recommendation to pursue “plant-forward” food

procurement across UM campuses. Specifically, UM aims to procure 20% of its food from sustainable sources by 2025. However, initiatives are not yet established to ensure this recommendation is fulfilled.

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

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

The University of Michigan Procurement Services has sustainable [purchasing resources](#), including a list of sustainable suppliers for lab equipment and cleaning supplies. Michigan Medicine supports this initiative by purchasing Electronic Product Environmental Assessment Tool registered electronics, Greenseal and Ecologo cleaning products, and DEHP and PVC products in many areas. However, there are no requirements for the amount or type of sustainable products that must be purchased. Rather, UM procurement services [encourages](#) departments to stimulate demand for greener products based on their preferences.

The [President’s Commission on Carbon Neutrality Final Report](#) outlines the University’s goal to eliminate scope 3 emissions, including those from procurement. Although the Medical School is organizing a committee to ensure this goal is met, clear next steps have not yet been established.

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

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

The medical school has [resources](#) available to guide sustainable decisions in event planning but they are optional and not overtly advertised. Medical students are working with the medical school's events coordinator to encourage sustainable event planning.

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

2	Yes, the medical school has programs and initiatives to assist with making lab spaces more environmentally sustainable.
1	There are guidelines on how to make lab spaces more environmentally sustainable, but not programs or initiatives.
0	There are no efforts at the medical school to make lab spaces more sustainable.
<p>The University of Michigan Office of Campus Sustainability has several initiatives in place to make lab spaces more environmentally sustainable. Labs can apply for a “Sustainable Laboratory Certification.” which is provided based on their energy conservation and waste reduction practices. Programs for waste reduction include the Chemical, Equipment, and Materials (ChEM) Reuse Program, which facilitates the exchange of surplus lab materials such as chemicals, rather than disposal. There is also a pipet tip recycling program. Energy conservation methods include closure of fume hoods, incubators, and other equipment when not in use. Appropriate freezer temperatures are also required for certification. In addition, lab personnel are encouraged to apply to the “Planet Blue Ambassador,” program, which educates participants on sustainability goals</p>	

11. Does your institution’s endowment portfolio investments include fossil-fuel companies?	
4	The institution is entirely divested from fossil fuels and has made a commitment to reinvest divested funds into renewable energy companies or renewable energy campus initiatives.
3	No, the institution is entirely divested from fossil fuels.
2	The institution has partially divested from fossil fuel companies or has made a commitment to fully divest, but currently still has fossil fuel investments.
1	The institution has not divested from fossil-fuel companies, but faculty and/or students are conducting organized advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.
<p>The University of Michigan divested from fossil fuels in 2021. The University no longer invests in any of the top 100 coal or public oil and gas companies. In addition, the Board of Regents approved a \$140 million investment in funds directed toward renewable energy development.</p>	

Section Total (x out of 31)	22
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Are there additional sustainability resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Grading

Section Overview

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

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

**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 Michigan Medical School

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

Section	Raw Score	Letter Grade
Planetary Health Curriculum (30%)	$(30 / 69) \times 100 = 44\%$	C -
Interdisciplinary Research (17.5%)	$(10 / 17) \times 100 = 59\%$	C +
Community Outreach and Advocacy (17.5%)	$(5 / 14) \times 100 = 36\%$	D+
Support for Student-led Planetary Health Initiatives (17.5%)	$(12 / 15) \times 100 = 80\%$	A-
Campus Sustainability (17.5%)	$(22 / 31) \times 100 = 71\%$	B
Institutional Grade	55.43%	C +