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# **Planetary Health Report Card (Medicine):**

*University of Missouri-Columbia  
School of Medicine*

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**School of Medicine**  
University of Missouri

2023-2024 Contributing Team:

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## Summary of Findings

Overall	C
<u>Curriculum</u>	D-
<ul style="list-style-type: none"> <li>In the past year, the University of Missouri-Columbia (MU) School of Medicine has implemented small changes in the curriculum to include planetary health topics. Examples of such additions include supplemental readings and learning objectives that prompt students to explore the correlations between environmental heat and cardiovascular disease. Despite these additions, planetary health is primarily an elective component of the curriculum.</li> <li><b>Recommendations:</b> Explicitly address these topics in lectures and formally dedicate faculty to the longitudinal incorporation of planetary health in the curriculum.</li> </ul>	
<u>Interdisciplinary Research</u>	C -
<ul style="list-style-type: none"> <li>The University of Missouri-Columbia has several avenues for faculty and students to get involved with interdisciplinary planetary health research, but the School of Medicine was largely excluded until last year. The research collaborators tool allows faculty members with mutual interests in sustainability research and its effect on human and animal health to work together. This led to the formation of the Interdisciplinary Plant Group (IPG) at the Christopher S. Bond Life Sciences Center.</li> <li><b>Recommendations:</b> Organize a conference hosted by the Bond Life Sciences Center to highlight sustainability research. Formally join a planetary health alliance to show university efforts in sustainability.</li> </ul>	
<u>Community Outreach and Advocacy</u>	C+
<ul style="list-style-type: none"> <li>The University of Missouri-Columbia School of Medicine and MU Health offered 3 community-facing events this year through our local chapter of Medical Students for a Sustainable Future (MS4SF). MS4SF sends out regular communications related to planetary health and partners with the City of Columbia’s Sustainability Office and the Missouri Coalition for the Environment. However, there are currently no provided educational materials on planetary health for CME or to inform patients.</li> <li><b>Recommendations:</b> Publish educational pamphlets for patients on the MU School of Medicine website. Increase community engagement in events and student involvement with community projects.</li> </ul>	
<u>Support for Student-Led Initiatives</u>	A-
<ul style="list-style-type: none"> <li>The University of Missouri-Columbia has research opportunities available for students interested in planetary health, but it does not provide grants or fellowships specific to sustainability initiatives. The university is supportive of student sustainability groups and hosts a variety of co-curricular planetary health events, but the medical school curriculum board lacks members who represent sustainability interests.</li> <li><b>Recommendations:</b> Offer funding specifically for student-led planetary health initiatives. Formally appoint a student to the curriculum board who can ensure that planetary health concepts are incorporated.</li> </ul>	
<u>Campus Sustainability</u>	C+
<ul style="list-style-type: none"> <li>The University of Missouri-Columbia’s primary medical education building received Platinum LEED certification and prioritized the use of locally sourced materials in its construction. The university has explicit goals for carbon neutrality detailed in the Office of Sustainability’s Climate Action Plan.</li> <li><b>Recommendations:</b> Establish sustainability guidelines for medical school events and for the procurement of food and drink at MU Health cafeterias. Advocate for the divestment of fossil fuel industries from the University of Missouri-Columbia’s endowment portfolio and for increased utilization of renewable energy.</li> </ul>	

# 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 “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 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 (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. 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 examples).

**Added to our resources in 2022 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

1.1. Did your <u>medical school</u> 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 <b>more than one</b> elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered <b>one</b> elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does <b>not</b> have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a <b>lecture</b> on planetary health.
0	No, the medical school has <b>not</b> offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine did not offer electives on planetary health or electives that include ESH/planetary health topics in the past year.</p>	

## Curriculum: Health Effects of Climate Change

1.2. Does your <u>medical school</u> curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine does briefly cover this topic in its Introduction to Patient Care curriculum in students' fourth block of their first year of medical school. This block of curriculum is designed to give students an understanding of investigative medicine and biomedical statistics. This year (2024), students will be using articles entitled "Analysis of Heat Exposure During Pregnancy and Severe Maternal Morbidity" and "A population-based case-control study of the association between weather-related extreme heat events and low birthweight" to explore these learning objectives.</p>	

**1.3. 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 <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation:* The University of Missouri-Columbia School of Medicine curriculum does not address the impacts of extreme weather events on individual health and/or on healthcare systems.

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

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

*Score explanation:* The University of Missouri-Columbia School of Medicine added a learning objective to the Block 5 curriculum reviewing the epidemiology and risk factors of HIV infection and the impact of climate change on HAART adherence, transmission, and prognosis. However, given that a large portion of this block of studies is infectious disease-based and none of the microbiology or virology lectures included changing patterns of infectious disease, it will be considered brief.

**1.5. Does your medical school curriculum address the respiratory health effects of climate change and air pollution?**

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

*Score explanation:* The University of Missouri-Columbia School of Medicine curriculum contains a lecture within the pediatric clerkship that mentions the adverse effects of climate change on pediatric asthma, specifically on those of lower socioeconomic groups. This was scored as elective coursework because the lecture was only mandatory for students on the Columbia campus, not students on the Springfield Campus or those completing their rotations in St. Louis. It is also unclear if this lecture will be added as a staple to the pediatrics curriculum.

**1.6. Does your medical school curriculum address the cardiovascular health effects of climate change, including increased heat?**

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

*Score explanation:* The University of Missouri-Columbia School of Medicine has added two learning objectives in their cardiovascular and pulmonary physiology curriculum (Block 2) that address this point. They are written as follows: “Describe the major risk factors of cardiovascular disease including the impact of extreme heat” and “Outline the pathogenesis and pathology of atherosclerotic coronary artery disease and summarize the epidemiological evidence regarding known risk factors, including the effects of extreme heat.”

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

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

*Score explanation:* The University of Missouri-Columbia School of Medicine does not currently include these topics as part of the curriculum, but several faculty members did note interest in exploring the topic in the future.

**1.8. 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 <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation:* The University of Missouri-Columbia School of Medicine frequently addresses food security throughout the curriculum, but the link between climate change and food/water security is not explored.



**1.9. 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 <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation:* The University of Missouri-Columbia School of Medicine curriculum does not currently include the effects of climate change nor does it specifically address the disproportionate impact on marginalized communities. While there are a few pre-clinical lectures (i.e., Block 7, Chronic Kidney Disease) that mention such disparities, no further investigation is made into these topics.

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

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

*Score explanation:* The University of Missouri-Columbia School of Medicine does not have formal coursework which compares regional health impacts of climate change in the U.S. or globally.

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

**1.11. 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 <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation:* The University of Missouri-Columbia School of Medicine curriculum includes course learning objectives that address birth defects and several topics, specifically within embryology and neurology, that have connections to industry-related environmental toxins. While there is no explicit mention of these topics, it is reasonable to assume that students may explore these connections in their required independent learning objectives. However, as this process is not standardized, this was scored as a part of elective coursework.

**1.12. 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 <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation:* Mid-Missouri is at an increased risk of river-related storm events, tornados, and heat-related incidents. The University of Missouri-Columbia School of Medicine curriculum does not formally address these specific human-caused environmental threats that are relevant to Columbia and the surrounding areas.

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

*Score explanation:* The University of Missouri-Columbia School of Medicine curriculum does not currently include Indigenous representation or education about vulnerabilities.

**1.14. 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 <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.

*Score explanation:* The University of Missouri-Columbia School of Medicine curriculum addresses this topic implicitly throughout preclinical coursework. However, there is no specific educational material covering this topic, and faculty agreed that the topics were not sufficiently covered.

*Curriculum: Sustainability*

1.15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum.
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine curriculum includes a learning objective which students must independently research and present to their fellow classmates that explores the benefits of a plant-based diet. Some students may elect to explore the environmental benefits tied to this lifestyle choice. As discussed previously, this learning is not standardized and cannot be considered a part of the core curriculum.</p>	

1.16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
3	This topic was explored <b>in depth</b> by the <b>core</b> curriculum
2	This topic was <b>briefly</b> covered in the <b>core</b> curriculum.
1	This topic was covered in <b>elective</b> coursework.
0	This topic was <b>not</b> covered.
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine curriculum does not provide educational material that addresses this topic.</p>	

1.17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (points for each)	
2	The health <b>and</b> environmental <b>co-benefits</b> of <b>avoiding</b> over-medicalisation, over-investigation and/or over-treatment
2	The environmental impact of <b>pharmaceuticals</b> and over-prescribing as a cause of climate health harm. Alternatively teaching on <b>deprescribing</b> where possible and its environmental and health co-benefits would fulfill this metric.
1	The health <b>and</b> environmental <b>co-benefits</b> of <b>non-pharmaceutical management</b> 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	Environmental impact of <b>surgical</b> healthcare on planetary health and the climate crisis, and how can it be mitigated

1	The impact of <b>anaesthetic</b> gases on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions
1	The impact of <b>inhalers</b> on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	<b>Waste production</b> within healthcare <b>clinics</b> and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine curriculum covers several of these topics (including overdiagnosis, overtreatment, and nonpharmacologic management of various conditions) within the Introduction to Patient Care course that students are required to take during preclinical years. However, the environmental impacts of these phenomena are not mentioned.</p>	

*Curriculum: Clinical Applications*

<b>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?</b>	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the <b>core</b> curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in <b>elective</b> coursework.
0	No, there are <b>not</b> strategies introduced for having conversations with patients about climate change
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine curriculum teaches interviewing skills through role play and small group sessions within the Introduction to Patient Care course. At this time, no strategies for conversations about health effects of climate change are included.</p>	

<b>1.19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies for taking an environmental history or exposure history?</b>	
2	Yes, the <b>core</b> curriculum includes strategies for taking an environmental history.
1	Only <b>elective</b> coursework includes strategies for taking an environmental history.
0	No, the curriculum does <b>not</b> include strategies for taking an environmental history.
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine curriculum does teach students to take an occupational history and address current living situations within the social history section of the patient interview. However, there is no specific training on how to inquire about specific patient exposures to environmental toxins that could impact health. This could be easily incorporated into the existing curricular structure by including specific follow-up questions within the social history interview template provided to students in their Introduction to Patient Care course in block 1.</p>	

*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?**

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

*Score explanation:* At the University of Missouri-Columbia School of Medicine, as a result of the 2023 PHRC outcomes, multiple block directors responsible for curricular content in the preclinical years took the initiative to add some planetary health-related topics into appropriate lectures and block objectives for the current academic year. Further, block directors expressed their willingness to remain in conversation with our organization to further incorporate these changes in the future. There is significant support for the implementation of this change from the deans who recognize planetary health as an important addition to medical education. Additionally, the Preclinical Curriculum Steering Committee has previously met with our local MS4SF team to speak about the importance of including these metrics in the past and has distributed materials to block directors who are responsible for implementing content within the courses.

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

6	Planetary health/ESH topics are <b>well integrated</b> into the core medical school curriculum.
4	<b>Some</b> 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 <b>(a) standalone lecture(s)</b> .
0	There is <b>minimal/no</b> education for sustainable healthcare.

*Score explanation:* All current integration of planetary health is primarily addressed either in standalone lectures, readings, or within learning objectives that require student-led exploration of these topics.

**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?**

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

*Score explanation:* There is not a specific faculty or staff member currently responsible for overseeing integration of planetary health and sustainability into the medical education curriculum.

**Section Total (15 out of 72)**

**20.83%**

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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.*

<b>2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your <u>medical school</u>?</b>	
3	Yes, there are faculty members at the <b>medical school</b> who have a <b>primary</b> research focus in planetary health <b>or</b> healthcare sustainability.
2	Yes, there are individual faculty members at the <b>medical school</b> who are conducting research <b>related</b> 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 <b>institution</b> , but none associated with the medical school.
0	No, there are <b>no</b> planetary health and/or healthcare sustainability researchers at the <b>institution</b> or <b>medical school</b> at this time.
<p><i>Score explanation:</i> The University of Missouri-Columbia School of Medicine has a dedicated Interdisciplinary Plant Group (IPG), which is an interdisciplinary research group focused on understanding how plants are adapting to changing environments, and how this effect translates to human and animal health. There are many researchers under the directors' leadership at IPG who are working together to answer these questions. For example, Dr. Lin's primary research is focused on bioremediation, ecological restoration, natural products and development of bioeconomy. Although IPG claims to be affiliated with the School of Medicine, there are no individual faculty members listed who are affiliated with the School of Medicine. Due to this limitation in information about affiliation with the School of Medicine, a score of 1 is most appropriate.</p>	

<b>2.2. Is there a dedicated department or institute for interdisciplinary planetary health research at your <u>institution</u>?</b>	
3	There is <b>at least one</b> dedicated department or institute for interdisciplinary planetary health research.
2	There is <b>not currently</b> a department or institute for interdisciplinary planetary health research, but there are <b>plans</b> to open one in the next 3 years.
1	There is an <b>Occupational and Environmental Health department</b> , but no interdisciplinary department or institute for planetary health research.
0	There is <b>no</b> dedicated department or institute.

*Score explanation:* The Christopher S. Bond Life Sciences Center is an interdisciplinary center at University of Missouri-Columbia that focuses on solving problems intersecting with human and animal health, environment, and agriculture. [The Plants For Our Future](#) division of this center is specifically focused on how plants are coping with changes in stressors and how management of these stressors can impact human and animal health. The [Interdisciplinary Plant Group \(IPG\)](#) at the University of Missouri also has similar mission values. IPG is a dedicated interdisciplinary group comprised of several colleges within the institution including the Agriculture, Food and Natural Resources college, Arts and Science, and Engineering college, the School of Medicine, and the USDA-ARS Plant Genetics Research Unit. The aim of this interdisciplinary group is to combine efforts to study how plants are adapting to a changing environment, and how that affects human and animal health. Based on this information, a score of 3 is justified for the University of Missouri-Columbia.

**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 medical school?**

3	Yes, there is a process in which community members impacted by climate and environmental injustice have <b>decision-making power</b> in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice <b>advise</b> the climate + environmental research agenda.
1	<b>No</b> , but there are <b>current efforts</b> to establish a process for community members to advise or make decisions on the research agenda.
0	There is <b>no</b> process, and <b>no</b> efforts to create such a process.

*Score explanation:* [‘The Connector’](#) is a joint unit between the University of Missouri-Columbia’s division of research, innovation, and impact and the office of extension and engagement. This institutional group aims to connect faculty, students, staff, and community members for the purpose of research development, communication, engagement, and professional development. There are also several programs to help involve underrepresented members in our community with research development.

The School of Medicine currently does not have its own group that focuses on involving the community with the research agenda, but it does have a community outreach group with the [MU Family Impact Center](#) led by Dr. Charles Holland. This group focuses on being a part of the community by providing healthcare for the uninsured as well as working with youth to start their careers.

The School of Medicine does not seem to initiate the inclusion of community input with research agenda, but the university affiliated divisions of research and outreach do so. There is no further information from the School of Medicine regarding plans to include more community input with research agenda.

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

3	There is an <b>easy-to-use, adequately comprehensive</b> website that <b>centralizes</b> 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.
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2	There is a website that <b>attempts to centralize</b> various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The <b>institution</b> has an <b>Office of Sustainability website</b> that includes <b>some</b> resources related to health and the environment.
0	There is <b>no</b> website.
<p><i>Score explanation:</i> <a href="#">Sustain Mizzou</a> is a student-run environmental program at the University of Missouri-Columbia that aims to educate students, faculty, and the community with resources and information related to environmental events and organizations. Although the central theme of Sustain Mizzou does not include any information regarding research, the interdisciplinary nature of this initiative connects students and faculty across multiple departments to collaborate on research projects concerning health and the environment. Sustain Mizzou also includes an easy to use <a href="#">virtual web tour</a> that highlights the initiatives taken on the Mizzou campus as well as guides to obtain more information and a calendar for current events. The <a href="#">Interdisciplinary Plant Group (IPG)</a> at the University of Missouri makes up what Sustain Mizzou lacks by highlighting the research focus on sustainability in a user-friendly website.</p>	

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

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

*Score explanation:* The [Christopher S. Bond Life Sciences Center](#) at the University of Missouri-Columbia has several groups that focus on planetary health research, but there are no current plans to host a planetary health conference. The University of Missouri-Columbia research department may host a few events related to planetary health as part of a guest lecture series, but there are currently no dedicated lecture series on this topic.

**2.6. 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 <b>or</b> ESH organization
0	No, the medical school is <b>not</b> a member of such an organization

*Score explanation:* The University of Missouri-Columbia School of Medicine is not listed in the members list of the Planetary Health Alliance or the Global Consortium on Climate and Health Education. School administration confirmed that there is no current membership with planetary health organizations.

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

**41.18%**

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

# 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.*

3.1. Does your <b>medical school</b> partner with community organizations to promote planetary and environmental health?	
3	Yes, the <b>medical school</b> meaningfully partners with <b>multiple</b> community organizations to promote planetary and environmental health.
2	Yes, the <b>medical school</b> meaningfully partners with <b>one</b> community organization to promote planetary and environmental health.
1	The <b>institution</b> partners with community organizations, but the medical school is not part of that partnership.
0	No, there is <b>no</b> such meaningful community partnership.
<p><i>Score explanation:</i></p> <p>Our local MS4SF chapter connected with Missouri Coalition for the Environment (MCE) and hosted a legislative advocacy event (10-28-2023) to teach students more about being active with legislative policy on the state level. With the formation of this relationship MCE wants to further work with the medical students to advocate during the policy cycle in 2024.</p> <p>We forged a relationship with Volunteer Columbia, to adopt a 0.25 mile section of a local trail in town. We attended training on managing invasive plant species, such as bush honeysuckle and wintercreeper. In addition to clearing out invasive species so native plants can thrive, we also clean up trash along our section.</p> <p>MS4SF organized an educational event with Mayor Barbara Buffaloe focusing on sustainability in Columbia and how healthcare professionals can get involved (01-09-2023). The University of Missouri-Columbia is working to grow this partnership with the City of Columbia Officials and with the Public Office of Sustainability. Through this connection, students can volunteer with a number of sustainability projects developed by the City of Columbia, such as “<a href="#">Show Me The Heat</a>” and the “<a href="#">Youth Monarch Conservation Program</a>,” as well as sitting in on monthly City Sustainability Meetings.</p>	

3.2. Does your <b>medical school</b> offer community-facing courses or events regarding planetary health?	
3	The <b>medical school</b> offers community-facing courses or events at least once every year.
2	The <b>medical school</b> 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 <b>institution</b> has offered community-facing courses or events, but the <b>medical school</b> was not involved in planning those courses or events.
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0	The <b>institution/medical school</b> have not offered such community-facing courses or events.
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*Score explanation:*

In October of 2023, our chapter MS4SF, hosted our first ever community facing event. We invited medical students, undergraduate students and community members. We used social media, email and GroupMe to promote our event. The event was a part of our chapter's application for APHA, American Public Health Association, Student Champions for Climate Justice: Creating an Academic Community Experience Award. This program kick-started our annual effort to create community facing events. This past year's event was a panel focused on Environmental Advocacy from many perspectives. We hosted a student speaker, a physician speaker and a lawyer working in environmental policy to speak on how students and community members could learn more and take steps toward active advocacy. Two community facing speaking opportunities that MS4SF spoke at were the Climate Leaders At Mizzou divest protest to urge the university of Missouri to divest from Fossil Fuel companies and at the Columbia Earth Day Celebration, we gave a talk on some common environmental health hazards and how to protect oneself.

**3.3. 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 <b>regularly</b> receive communication updates dedicated to planetary health and/or sustainable healthcare.
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1	Yes, planetary health and/or sustainable healthcare topics are <b>sometimes</b> included in communication updates.
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0	Students <b>do not</b> receive communications about planetary health or sustainable healthcare.
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*Score explanation:* Students receive regular email updates from the medical school’s chapter of Medical Students for a Sustainable Future (MS4SF) that include meeting times, journal articles, and more ways to get involved with sustainability.

**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?**

2	Yes, the <b>institution</b> or <b>main affiliated hospital trust</b> 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.
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1	Yes, the <b>institution</b> or <b>main affiliated hospital trust</b> offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
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0	There are <b>no</b> such accessible courses for post-graduate providers
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*Score explanation:* The University of Missouri-Columbia does not currently offer any CME courses regarding these topics. While our chapter is actively working to change this, the problem we ran into is

funding. It would cost our chapter \$600 per in-person session to get our panel event registered for CME credit.

**3.5. Does your medical school or its affiliated teaching hospitals have accessible educational materials for patients about environmental health exposures?**

2	Yes, the <b>medical school</b> or <b>all affiliated hospitals</b> have accessible educational materials for patients.
1	<b>Some</b> affiliated hospitals have accessible educational materials for patients.
0	<b>No</b> affiliated medical centres have accessible educational materials for patients.

*Score explanation:*

No educational materials regarding environmental health exposures are available online for patients through the University of Missouri-Columbia or affiliated MU-Health facilities.

**3.6. Does your medical school or its affiliated teaching hospitals have accessible educational materials for patients about the health impacts of climate change?**

2	Yes, the <b>medical school</b> or <b>all affiliated hospitals</b> have accessible educational materials for patients.
1	<b>Some</b> affiliated hospitals have accessible educational materials for patients.
0	<b>No</b> affiliated hospitals have accessible educational materials for patients.

*Score explanation:*

No educational materials regarding climate change and its health impacts are available online for patients through the University of Missouri-Columbia or affiliated MU-Health facilities.

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

**57.14%**

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# Support for Student-Led Planetary Health Initiatives

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

4.1. Does your <u>medical school</u> or your <u>institution</u> offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the <b>medical school</b> or <b>institution</b> <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 <b>medical school</b> or <b>institution</b> encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, <b>but</b> there is no student funding available and there is no requirement to participate.
0	No, <b>neither</b> the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.

*Score explanation:* The University of Missouri-Columbia School of Medicine is broadly supportive of student initiatives and QI projects in a variety of subjects, but neither the School of Medicine nor the University of Missouri-Columbia have earmarked funding or grants specifically for sustainability initiatives/projects. Some sustainability initiatives/projects do exist on campus, but they are funded by external grants.

4.2. Does your <u>institution</u> offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The <b>institution</b> has a <b>specific</b> 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 <b>require student initiative</b> to seek these out and carry them out in their spare time.
0	There are <b>no opportunities</b> for students to engage in planetary health/sustainable healthcare research.

*Score explanation:* The University of Missouri-Columbia has research opportunities for students interested in studying planetary health, and it has research fellowships available for topics related to planetary health. However, none of these fellowships are available to medical students, and medical students must seek out non-fellowship research opportunities and perform them in their spare time.

4.3. Does the <u>medical school</u> have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors	
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**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 <b>medical school</b> has a web page 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 <b>medical school</b> 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 <b>no medical-school</b> specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

*Score explanation:* The University of Missouri-Columbia School of Medicine website has a "[Research Collaborators](#)" tool that allows students to search for areas of research interest, including sustainability. This tool allows students to identify potential research mentors and projects in their area of interest.

**4.4. 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 <b>with faculty support</b> 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 <b>lacks faculty support</b> .
0	No, there is <b>not</b> a student organization at my institution dedicated to planetary health or sustainability in healthcare.

*Score explanation:* The University of Missouri-Columbia School of Medicine has a chapter of MS4SF, which has support from a faculty advisor and several other members of the Office of Medical Education. MS4SF provides information to medical students about sustainability issues, engages in environmental advocacy at the institutional and political levels, and facilitates partnerships that will help make human activity more sustainable for the planet.

**4.5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?**

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

*Score explanation:* Although the University of Missouri-Columbia School of Medicine has a Curriculum Board with student representatives, the Curriculum Board does not have members who represent specific issues, including the issue of sustainability.

**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)**

1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.
1	Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students)

*Score explanation:*

1. Sustain Mizzou, the University of Missouri-Columbia's student-run sustainability program, hosts regular [garden work days](#) at a community garden that is run by the MU Child Development Lab and the MU Master Gardeners. Sustain Mizzou also organizes regular trips to the local farmer's market to promote sustainable agriculture. All students are invited to attend these garden work days and farmer's market trips.
2. Sustain Mizzou has [general meetings](#) at least once a month, and during these meetings they often have guest speakers who represent organizations or interests related to sustainability. All students are invited to attend these meetings.
3. The guest speakers that Sustain Mizzou invites to general meetings are often members of the local environmental justice community who speak to various climate and environmental challenges. Medical Students for a Sustainable Future also hosted an event in 2023 in which the Mayor and Sustainability Manager of Columbia spoke about environmental challenges and explained how medical students and healthcare professionals can help address these challenges.
4. The University of Missouri-Columbia has a 3-credit [Environmental Art course](#) in which students learn about the history of environmental art and ultimately create their own environmental art projects that may be available for public viewing.
5. Sustain Mizzou hosts a number of volunteer opportunities related to sustainability, including garden work days, [beekeeping events](#), recycling drives, and stream/river cleanup in partnership with the [Missouri Stream Team](#).
6. The Wilderness Medicine Interest Group at the University of Missouri-Columbia School of Medicine organizes outdoor recreational activities that allow students to participate in hiking, backpacking, etc. while also gaining wilderness medical training. [Venture Out](#) is another student group at the University of Missouri-Columbia that offers outdoor outings including orienteering, alpine tower climbing, and ropes courses.

**Section Total (12 out of 15)**

**80.00%**



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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.*

5.1. Does your <u>medical school</u> and/or <u>institution</u> 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 <b>at least one designated staff member</b> 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 <b>no specific staff member</b> in charge of medical school and/or hospital sustainability.
1	There are <b>no salaried sustainability staff</b> , but there is a sustainability task force or committee
0	There are <b>no staff members or</b> task force responsible for overseeing campus sustainability
<p><i>Score explanation:</i> The University of Missouri-Columbia has a well-established <a href="#">Office of Sustainability</a> with multiple full-time staff dedicated to campus sustainability. However, there is no specific staff member responsible for the medical school.</p>	

5.2. How ambitious is your <u>institution/medical school</u> plan to reduce its own carbon footprint?	
5	The institution/medical school has a <b>written and approved plan</b> to achieve carbon neutrality by <b>2030</b>
3	The institution/medical school has a <b>written and approved plan</b> to achieve carbon neutrality by <b>2040</b>
1	The institution/medical school has a stated goal of carbon neutrality by <b>2040</b> but has <b>not created a plan</b> to reach that goal or the <b>plan is inadequate</b>
0	The institution/medical school does <b>not</b> meet any of the requirements listed above
<p><i>Score explanation:</i> The University of Missouri-Columbia has a published <a href="#">Climate Action Plan</a> with an original goal of carbon neutrality by 2050, but it is currently exceeding goals each year which would place the new estimate closer to 2040.</p>	

5.3. Do buildings/infrastructure used by the <u>medical school</u> for teaching (not including the hospital) utilize renewable energy?	
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3	Yes medical school buildings are <b>100%</b> powered by renewable energy
2	Medical school buildings source <b>&gt;80%</b> of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source <b>&gt;20%</b> of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <b>&lt;20%</b> of energy needs from off-site and/or on-site renewable energy.
<p><i>Score explanation:</i> The University of Missouri-Columbia’s Patient Centered Care Learning Center, the preclinical medical education building, is powered primarily by the onsite MU Power Plant along with the majority of campus. The power plant utilizes a Combined Cooling Heat and Power (CCHP) with renewable biomass energy and a 34 kilowatt solar photovoltaic panel. There is also an on-site 20 kW wind turbine and offsite wind farm. <a href="#">Renewable energy</a> makes up 40 percent of the total campus energy supply. The university has also entered the EPA’s Green Power Partnership and has been named the International District Energy Association’s System of the Year twice.</p>	

<p><b>5.4. Are sustainable building practices utilized for new and old buildings on the <u>medical school</u> campus, with design and construction of new buildings and remodeling of old buildings conforming to a published sustainability rating system or building code/guideline?</b></p>	
3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the <b>majority</b> of old buildings <b>have been retrofitted</b> to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have <b>not been retrofitted</b> .
1	Sustainable building practices are <b>inadequately or incompletely</b> implemented for new buildings.
0	Sustainability is <b>not considered</b> in the construction of new buildings.
<p><i>Score explanation:</i> The University of Missouri-Columbia’s Patient Centered Care Learning Center, which is the only medical education building, received <a href="#">Platinum LEED certification</a> in 2009. Additionally, multiple structures within the building had materials locally sourced, and water refill stations are available on each floor to offset the use of plastic water bottles.</p>	

<p><b>5.5. Has the <u>medical school</u> or <u>institution</u> implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?</b></p>	
2	Yes, the medical school or institution has implemented strategies to encourage and provide <b>environmentally-friendly transportation options</b> 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 or institution has implemented <b>some</b> strategies to provide environmentally-friendly transportation options, but the options are <b>unsatisfactorily</b> accessible or advertised.

0	The medical school or institution has <b>not</b> implemented strategies to encourage and provide environmentally-friendly transportation options.
<p><i>Score explanation:</i> Students have multiple environmentally-friendly transportation options including free transit on the city's bus routes with stops near the medical school and extensive bike-friendly trail systems with bike racks at each entrance to the medical school building. However, several off-campus clinical sites are more difficult to access without a car in the 3rd and 4th years, and the majority of students drive to school. There is no mention of environmentally friendly transportation options during orientation week and few students utilize these options.</p>	

5.6. Does your <u>medical school</u> have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has <b>both</b> compost <b>and</b> recycling programs accessible to students and faculty.
1	The medical school has <b>either</b> recycling <b>or</b> compost programs accessible to students and faculty, but not both.
0	There is <b>no</b> compost or recycling program at the medical school.
<p><i>Score explanation:</i> The University of Missouri-Columbia has 3-in-1 waste bins located throughout the medical school building that include paper and plastic/aluminum recycling. There is no composting program currently available to students.</p>	

5.7. Does the <u>medical school</u> 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 <b>adequate</b> sustainability requirements for food and beverages, including meat-free days or no red-meat, and <b>is engaged</b> in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are <b>insufficient or optional</b> . The medical school <b>is engaged</b> in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are <b>insufficient or optional</b> . The medical school is <b>not</b> engaged in efforts to increase food and beverage sustainability.
0	There are <b>no</b> sustainability guidelines for food and beverages.
<p><i>Score explanation:</i> Insert explanation here. The University of Missouri-Columbia procures over \$1 million worth of food annually from Missouri farmers and retailers including Missouri Legacy Beef to support locally and regionally based businesses. However, the medical school is not currently engaged in any specific efforts to increase food and beverage sustainability.</p>	

5.8. Does the <u>medical school</u> or <u>institution</u> apply sustainability criteria when making decisions about supply procurement?	
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3	Yes, the medical school has <b>adequate</b> sustainability requirements for supply procurement <b>and</b> is <b>engaged</b> in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are <b>insufficient or optional</b> . The medical school is <b>engaged</b> in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are <b>insufficient or optional</b> . The medical school is <b>not engaged</b> in efforts to increase sustainability of procurement.
0	There are <b>no</b> sustainability guidelines for supply procurement.

*Score explanation:* The University of Missouri-Columbia has a published set of requirements for use of environmentally friendly cleaning supplies that requires a third party certification for routinely used chemicals. Paper and plastic products purchased must meet the EPA’s Comprehensive Procurement guidelines. The guidelines include standards for implementing these criteria upon the construction of new buildings including the training of custodial staff.

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

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

*Score explanation:* There are not currently any formal sustainability guidelines for events hosted by the medical school.

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

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

*Score explanation:* While the medical building does not have any laboratory spaces, the University of Missouri-Columbia does have a [chemical redistribution program](#) to help reduce waste and decrease disposal and purchasing costs related to environmentally hazardous substances.

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

4	The institution is <b>entirely divested</b> from fossil fuels <b>and</b> has made a <b>commitment to reinvest divested funds</b> into renewable energy companies or renewable energy campus initiatives.
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3	The institution is <b>entirely divested</b> from fossil fuels.
2	The institution has <b>partially divested</b> from fossil fuel companies <b>or</b> has made a <b>commitment to fully divest</b> , but <b>currently</b> still has fossil fuel investments.
1	The institution has <b>not divested</b> from fossil-fuel companies, but faculty and/or students are <b>conducting organized advocacy</b> for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been <b>no efforts</b> to change that.
<p><i>Score explanation:</i> The University of Missouri has not divested from fossil-fuel companies. However, there have been several organized advocacy efforts, primarily led by students in the Climate Leaders at Mizzou and Mizzou Energy Action Coalition. Administration has denied these requests in the past, citing the need to keep education as affordable as possible, but efforts are still underway to encourage divestment from student groups.</p>	

<b>Section Total (18 out of 32)</b>	<b>56.25%</b>
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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 Missouri-Columbia School of Medicine

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

Section	Raw Score %	Letter Grade
<b>Planetary Health Curriculum (30%)</b>	$(15/72) \times 100 = 20.8\%$	D-
<b>Interdisciplinary Research (17.5%)</b>	$(7/17) \times 100 = 41\%$	C-
<b>Community Outreach and Advocacy (17.5%)</b>	$(8/14) \times 100 = 57\%$	C+
<b>Support for Student-led Planetary Health Initiatives (17.5%)</b>	$(12/15) \times 100 = 80\%$	A-
<b>Campus Sustainability (17.5%)</b>	$(18/32) \times 100 = 56\%$	C+
<b>Institutional Grade</b>	$(A \times 0.3 + B \times 0.175 + C \times 0.175 + D \times 0.175 + E \times 0.175) = 47.30\%$	<b>C</b>

# Report Card Trends

## Section Overview

This graph demonstrates trends in overall and section grades for the years in which University of Missouri-Columbia has participated in the Planetary Health Report Card initiative.

