



Planetary Health Report Card:

University of Arkansas for Medical Sciences

UAMS



COLLEGE OF MEDICINE

UNIVERSITY OF ARKANSAS FOR MEDICAL SCIENCES

2022-2023 Contributing Team:

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Summary of Findings

Overall	C
<u>Curriculum</u>	C +
<ul style="list-style-type: none"> UAMS faculty has incorporated several topics discussing planetary health in relation to medicine throughout the first and second year curriculum. There has also been recent approval for a fourth year Climate Change and Health elective that will be available for students in the upcoming year. Recommendations: There is a lack of teaching about introducing conversations about planetary health into conversations with patients as well as sustainable clinical practice, indigenous knowledge, and the carbon footprint in the healthcare system. These topics could be integrated into the third year curriculum as students become more exposed to the healthcare environment. 	
<u>Interdisciplinary Research</u>	D +
<ul style="list-style-type: none"> Although it is not the primary focus of his research, there have been multiple publications by Dr. Manish Joshi over the effects of climate change on respiratory health. Recommendations: UAMS could offer more opportunity for community involvement in deciding new research topics, as well as hosting a Planetary Health symposium or the College of Medicine becoming a member of an international planetary health organization. 	
<u>Community Outreach and Advocacy</u>	B -
<ul style="list-style-type: none"> The University of Arkansas for Medical Sciences provides several educational resources to its patients and the surrounding community on climate change and health; however, the College of Medicine could be more involved in these efforts. Recommendations: The College of Medicine could be a member of a community organization and provide events or courses geared toward educating the community to promote planetary health. 	
<u>Support for Student-Led Initiatives</u>	B
<ul style="list-style-type: none"> The University of Arkansas for Medical Sciences encourages students to become involved in planetary health. The student-led "Climate Health Interest Group" organizes several opportunities for students to become involved in, such as educational lecture series and volunteer opportunities at the local gardens, ect. Recommendations: The Climate Health Interest Group could work to provide cultural events related to planetary health to students for the College of Medicine. The COM administration could provide a position for a student-liaison to be able to advocate for planetary health integration into the curriculum when decision-making for curriculum changes occurs. 	
<u>Campus Sustainability</u>	D
<ul style="list-style-type: none"> The University of Arkansas for Medical Sciences has made great progress recently in sustainability efforts with a new \$150 million energy project that will significantly reduce energy use and the carbon footprint as well as provide more sustainable infrastructure throughout the campus, but it does not include renewable energy use. Recommendations: There is still room to improve with the campus sustainability, such as providing sustainability guidelines with the food and beverages provided at UAMS, supply procurement, events hosted by the College of Medicine, and lab spaces. There could also be more transparency with UAMS fossil-fuel investment companies and efforts to divest. 	

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 civilization 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 minimizes 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 last 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 <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 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.
<p><i>The UAMS College of Medicine (COM) has not offered electives on planetary health, nor electives that include ESH/planetary health topics. However, the COM has recently approved a Climate Change and Health elective for M4s to begin in the upcoming year.</i></p>	

Curriculum: Health Effects of Climate Change

2. Does your <u>medical school</u> 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.
<p><i>As part of the first year core curriculum, in the Practice of Medicine (POM) course, Dr. Alice Alexander explores extreme heat and mortality data in detail in the lecture titled "Climate Change and Health: How should a medical school address this problem?". Additionally, in a POM lecture titled "Social determinants that affect our health - a deep dive", Drs. Sara Tariq and Riley Lipschitz explore how climate change disproportionately impacts lower SES communities. Additionally, in the second</i></p>	

year renal module, Dr. Nishank Jain notes the impact of working in hot climates as a risk factor for nephrolithiasis. In the same module, Dr. Manisha Singh cites the specific role of increased heat on nephropathy.

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.

In the POM course, Dr. Alice Alexander's lecture on climate change and health addresses the impacts of extreme weather events on individual health. This lecture highlights contributions of climate change-induced rises in temperature to overall mortality and explains how extreme weather events impact access to care. Additionally, in the second-year renal module, Dr. Manisha Singh highlights the role of climate change in droughts and food shortages, as well as the downstream negative health effects.

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.

In Dr. Alexander's first year POM lecture on climate change and health, she addresses the epidemiology of certain infectious diseases, including illnesses caused by Vibrio species, ixodes ticks, Zika, Dengue, and Chikungunya. Matthew Jorgenson, PhD, also states that emergency rooms will see higher rates of Vibrio infections due to climate change-induced warming of oceans in his infectious disease lecture. In the second year GI and Nutrition module, Dr. Matthew Jorgenson states that emergency rooms will see higher rates of Vibrio infections due to climate change-induced warming of oceans.

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.

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

0	This topic was not covered.
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In Dr. Alexander's POM lecture on climate change and health, she states that carbon emissions drive climate change, and that the resultant air pollution is contributing to respiratory disease. Additionally, in an obstructive respiratory disease lecture given by Manish Joshi, MD, to second year students, he addresses the role of biomass fuel exposure and air pollution in respiratory disease.

In the second year pulmonary module, Dr. Manish Joshi cites biomass fuel exposure and air pollution as contributing factors to obstructive respiratory disease. Several other lectures in the M1 and M2 curriculum note adverse pulmonary health effects due to inhalation of exogenous particles associated with human activities that accelerate climate change.

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.
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2	This topic was briefly covered in the core curriculum.
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1	This topic was covered in elective coursework.
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0	This topic was not covered.
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The curriculum does not address the cardiovascular effects of environmental degradation and climate change.

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.
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2	This topic was briefly covered in the core curriculum.
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1	This topic was covered in elective coursework.
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0	This topic was not covered.
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The curriculum does not address the mental health and neuropsychological effects of environmental degradation and climate change.

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.
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2	This topic was briefly covered in the core curriculum.
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1	This topic was covered in elective coursework.
0	This topic was not covered.
<p><i>Dr. Nishank Jain cites global warming as a contributing factor to increased risk of kidney stones (second year renal module); Dr. Matthew Jorgenson states emergency rooms will see higher rates of Vibrio parahaemolyticus due to the climate change-induced warming of oceans (second year GI and Nutrition module); Dr. Manisha Singh describes how climate change is increasing rates of dehydration, drought, water shortages, and heat stress, which has implications on food supply, poverty, toxin exposure, and kidney disease and other illnesses (second year renal module).</i></p>	

<p>9. Does your <u>medical school</u> 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?</p>	
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><i>In the first year POM course, Drs. Sara Tariq and Riley Lipschitz discuss the intersectionality of climate change and social health determinants. They describe how health, social equity, and environment synergistically contribute to global issues, such as climate change. Drs. Tariq and Lipschitz also explain how climate change will continue to impact health outcomes through access to food, water, and clean air. They highlight specific examples of environmental factors disproportionately impacting lower SES communities and communities of color, such as the 1995 heat wave in Chicago. Dr. Manisha Singh's lecture on chronic kidney disease (second year renal module) discusses how climate change will continue to force more people into extreme poverty by diminishing crop yields and water supplies. In the second year Practice of Medicine course, Dr. Kindann Fawcett's lecture on Obesity, Nutritional Education, and Counseling discusses unequal opportunities for access to healthy foods and green spaces as social determinants of obesity.</i></p>	

<p>10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?</p>	
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><i>Dr. Manisha Singh (second year renal module) addresses the unequal health impacts of climate change globally, stating that it will force more people into extreme poverty by impairing crop yields and altering water supplies.</i></p>	

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.

In the second year Endocrine and Reproductive module, Dr. Gwen Childs gives a lecture on embryology of reproductive systems that states increasing incidence of defects in formation of male genitalia may be tied to environmental estrogens. In the same module, Dr. Rosalia Simmen's lecture on female reproductive physiology notes that early exposure to environmental estrogens can have significant negative consequences.

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.

In the first year POM lecture on climate change and health, Dr. Alexander explains allergens, like ragweed, grow faster and produce more pollen when exposed to higher levels of CO2 in the air. Dr. Alexander points out that Little Rock, where the UAMS main campus is located, already ranks #11 on the Asthma and Allergy Foundation's "Asthma Capitals" list and provides suggestions for reducing asthma attacks and allergic reactions during peak times of the year. She also describes the growth of indoor fungal spores as a result of flooding, risk of wildfires, and increased rates of certain infectious diseases as local environmental threats exacerbated by climate change.

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.

The UAMS COM curriculum does not address the importance of Indigenous knowledge as essential components of planetary health solutions.

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.

In the POM course, the outsized impact of anthropogenic environmental toxins on vulnerable populations is addressed in the "Social Determinants of Health" lecture given by Drs. Sara Tariq and Riley Lipschitz. This lecture discusses how low-income communities encounter higher levels of pollutants and toxic waste, which put these populations at increased risk of certain diseases. Additionally, Dr. Tariq emphasizes the importance of taking an environmental history. She cites the Altgeld Gardens housing project in Chicago and the outsized impact of environmental toxins on the residents today as they live in one of the most dense concentrations of potentially hazardous pollution sources in North America due to nearby landfills and industrial plants.

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 the POM course, Dr. Alexander's lecture on climate and health lists counseling patients on the positive health impacts of plant-based diets as a way to help mitigate climate change, stating that meat and dairy production account for 14.5% of the world's greenhouse gas emissions.

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.
<i>The UAMS COM curriculum does not address the carbon footprint of healthcare systems.</i>	

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 and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment
2	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. This is commonly known as social prescribing in the UK.
1	Environmental impact of surgical healthcare on planetary health and the climate crisis, and how can it be mitigated
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 harmful anaesthetic gas options with reduced greenhouse gas emissions
1	The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	Waste production within healthcare clinics and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)
	<i>Dr. Ryan Dare's lecture (first year POM module) addresses the waste production of the healthcare system. Although social determinants of obesity and health benefits of non-pharmaceutical management are addressed in the M2 curriculum, environmental co-benefits are not included.</i>

Curriculum: Clinical Applications

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?	
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
<i>Though the curriculum trains students to ask about environmental exposures, it does not introduce strategies to have conversations with patients about the health effects of climate change.</i>	

19. In training for patient encounters, does your <u>medical school's</u> 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.
<i>In the Practice of Medicine course, students are trained to take a full social history, which includes asking patients about exposures to environmental and occupational hazards. Students must explicitly ask standardized patients about environmental exposures at work in order to satisfy all requirements on the clinical skills evaluations.</i>	

Curriculum: Administrative Support for Planetary Health

20. Is your <u>medical school</u> 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.
<i>The UAMS College of Medicine has recently approved a Climate Change and Health elective for M4s to begin in the upcoming year.</i>	

21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> 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.

Some of the aforementioned planetary health topics are appropriately and longitudinally integrated into the core curriculum, such as the effect of climate change on the epidemiology of infectious disease, the intersectionality of social determinants and climate change, and the effect of heat-related illness. The UAMS COM is actively working to improve this integration.

22. Does your medical school employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme throughout the course?

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

No, UAMS 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 course; however, there was a meeting this year with the administration of the College of Medicine to integrate more planetary health throughout the preclinical curriculum.

Section Total (42 out of 72)

58.3%

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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 <u>medical school</u> ?	
3	Yes, there are faculty members at the medical school who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the medical school 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><i>There are faculty members at the COM who have a primary research focus related to planetary health. Dr. Manish Joshi is a pulmonologist within the COM who has published multiple articles on the intersection of climate change and respiratory health, including a recent 2021 article that studied the interplay of climate change and COVID-19. Dr. Alice Alexander has delivered multiple lectures on planetary and environmental health to COM faculty, staff, and students.</i></p>	

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your <u>institution</u> ?	
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><i>The College of Medicine at UAMS still lacks a planetary health department. However, the College of Public Health does have an Environmental and Occupational Health department that focuses on assessing and controlling the impacts of the environment on individual and population health. Research projects within this department study planetary health issues such as air pollution effects on</i></p>	

cardiovascular and respiratory health, environmental effects on epigenetics, and the role of microbes in promoting environmental sustainability, bioremediation, and food preservation. An environmental and occupational health course is also offered within this college for students pursuing a public health degree.

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.

The UAMS Translational Research Institute has recently launched the The Community Based Participatory Research (CBPR) Scholars Program, with its main goal being to increase community-partnered research at UAMS to better serve the research needs of the Arkansas community and ultimately to reduce health disparities in Arkansas.

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 UAMS COM has the webpage "[Sustainable UAMS](#)", which provides educational information about on-campus recycling, sustainable nutrition through on-campus dining, links to sustainable transportation options, and utility energy-saving tips. Most of the content on the site is related to recycling efforts on campus, and the website currently does not include research or other education opportunities.

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.
<i>UAMS has not hosted a conference or symposium on topics related to planetary health in the last three years.</i>	

6. Is your <u>medical school</u> 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
<i>The UAMS College of Public Health has joined the Global Consortium on Climate and Health Education, but the UAMS College of Medicine has not. Thus, the institution has joined the Global Consortium on Climate and Health Education in some capacity, though the medical school specifically has not.</i>	

Section Total (6 out of 17)	35.3%
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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.*

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.

In October 2020, UAMS was awarded \$100,000 from the U.S. Department of Agriculture. This grant was used towards partnerships with a community organization to create more backyard gardens as a way to adapt to climate change (can be viewed here). A primary objective of this partnership is to provide education about plant-rich diets, importance of local food, climate change and health, and energy conservation. One of the community partners also includes the “Plant a Seed Foundation”.

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 institution/medical school have not offered such community-facing courses or events.

Science Cafe of Little Rock provides a monthly public forum for Arkansas researchers to educate the local community about various scientific topics. This event is co-sponsored by UAMS and KUAR, the University of Arkansas Little Rock public radio station. Several talks have related to planetary and/or environmental health, including the November 2019 “Climate Change and You”. Additionally, in October 2022, UAMS held National Primary Care Week, an annual event to

highlight the importance of primary care and bring health care professionals together to discuss and learn about the impacts climate change can and will have on human health and health care. Though these are open events, they are primarily created for a healthcare employee audience.

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 receive communications about planetary health or sustainable healthcare.

The student-led Climate Health Interest Group will host lectures periodically through the school year on sustainable healthcare and climate health by UAMS faculty, including Climate Health Disparities by Rachel Hale and an Introduction to Climate Health by Dr. Alice Alexander.

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

Yes, UAMS offers Continuing Medical Education courses that address planetary health and can be found through the institution's website, such as Dr. Alexander's Grand Rounds on "Climate Change and Health".

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.

Yes, UAMS has accessible educational materials for patients about environmental health exposures that can be found through the institution's [website](#).

6. Does your <u>medical school</u> or its <u>primary affiliated hospital</u> 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><i>Yes, UAMS has accessible educational materials for patients about climate change and health impacts that can be found through the institution's website, on the page "UAMS Library - Services to the state". Here, patients can find informational resources, including a link to the NIH's ToxTown page, which informs the general public about toxic chemicals and environmental health risks of everyday life.</i></p>	

Section Total (9 out of 14)	64.2%
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Are there additional community engagement and advocacy resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

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 <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 medical school or 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 or institution 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, neither the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.
<i>UAMS conducts sustainability QI projects and offers resources to help medical students participate in these efforts. However, there is no requirement to participate in a sustainability QI project as part of the core curriculum. Further, students must independently seek out these opportunities.</i>	

2. Does your <u>institution</u> 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.
<i>UAMS has opportunities for medical students to perform research related to planetary health and/or sustainable healthcare, however students must independently seek these out. Active efforts are being made to increase research opportunities in these fields, including those involving students.</i>	

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 within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
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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.
<i>The Sustainable UAMS page includes staff and faculty members and specific information relevant to sustainability. However it does not include details about current research projects or initiatives underway within the school.</i>	

4. Does your <u>medical school</u> 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.
<i>The student-led Climate Health Interest Group (CHIG) at UAMS is a registered interest group overseen by a faculty advisor. CHIG advocates for improvements in planetary health education, healthcare sustainability, and student participation in research and other opportunities throughout UAMS.</i>	

5. Is there a student liaison representing sustainability interests who serves on a <u>medical school</u> or <u>institutional</u> 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.
<i>Currently, there is no student representative who serves on a decision-making council to advocate for sustainability or curriculum reform. However, students do have the opportunity to attend curriculum committee meetings and advocate for curriculum reform independently.</i>	

6. In the past year, has the <u>institution</u> had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	
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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)
<p><i>Currently, there are two student-run gardens at UAMS that help provide fresh produce for uninsured and underserved patient populations in Little Rock, AR. The Harmony Health Garden is maintained by medical student volunteers and cultivates fresh produce for patients receiving care at the Harmony Health Clinic. The Interprofessional Fresh Food Coalition consists of students enrolled 15 in graduate health programs at UAMS and helps provide produce for patients at the 12th Street Clinic and Wellness Center. The student-led Climate Health Interest Group arranges panels and speakers for students to attend; the Emergency Medicine Interest Group arranges volunteer opportunities such as campus trash pick up days; the student-led Wilderness Medicine Interest Group organizes outdoor excursions that follow Leave No Trace principles.</i></p>	

Section Total (10 out of 15)	66.7%
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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 <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 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
<i>UAMS has a department called "Sustainable UAMS" with more than one full-time staff member dedicated to campus sustainability; however, there is no specific staff member in charge of medical school and/or hospital sustainability.</i>	

2. How ambitious is your <u>institution/medical school</u> plan to reduce its own carbon footprint?	
5	The institution/medical school has a written and approved plan to achieve carbon neutrality by 2030
3	The institution/medical school has a written and approved plan to achieve carbon neutrality by 2040
1	The institution/medical school has a stated goal of carbon neutrality by 2040 but has not created a plan to reach that goal or the plan is inadequate
0	The institution/medical school does not meet any of the requirements listed above
<i>In November 2022, UAMS formally committed to pursuing the goal of reducing emissions by 50% by 2030 and achieving net zero emissions by 2050. Although advances have been made, there is no approved plan to complete this goal.</i>	

3. Do buildings/infrastructure used by the <u>medical school</u> for teaching (not including the hospital)
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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><i>While UAMS nears completion of a \$150M energy project started in 2019 that intends to move the institution into the top 1% of academic medical centers for energy efficiency; however, there is no mention of efforts to utilize renewable energy. This project earned an invitation to participate in a panel discussion about the project and others at the VITAL 2022 conference in Boston.</i></p>	

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?	
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.
<p><i>Several actions have already taken place towards this goal through a \$150 million energy project that includes upgrading campus control systems, interior and exterior lighting, electrical and mechanical systems, building a new generator plant, upgrading essential power system, retro-commissioning and installation of building energy management controls, upgrading chilled water and heating water systems, and replacing critical air handling units. This Energy Savings Performance Program is giving an estimated \$4.8 million in annual energy savings and reduced carbon emissions for natural gas and electricity by 32%.</i></p>	

5. Has the <u>medical school</u> 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.
<i>UAMS has a shuttle system that transports students and employees between the different campus sites with a real time UAMS shuttle bus locator, electric car charging stations, car and van pooling options, and bicycle information.</i>	

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 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.
<i>UAMS has a conventional recycling program and has maps to recycling locations on campus, as well as a recycling day that allows for glass, electronic, and paper recycling. There is not a composting program accessible to students on campus, however, starting in 2016, unused food and waste from the cafeteria is donated to Organix, which is a national food company that uses food waste to make animal feed.</i>	

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 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.
<i>Although there is intention to improve nutrition sustainability and a “Stocked & Reddie” food pantry that recycles food preparation waste to animal feed, there are no sustainability guidelines for food and beverages.</i>	

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 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.
<i>There is no mention of sustainability guidelines in regards to supply procurement.</i>	

9. Are there sustainability requirements or guidelines for events hosted at the <u>medical school</u>?	
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.
<i>There are no sustainability requirements or guidelines for events hosted at the medical school.</i>	

10. Does your <u>medical school</u> 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.
<i>Although there are no guidelines on how to make lab spaces more sustainable, the UAMS Spine Lab has recently made efforts to go more green with 3-D printed cadavers.</i>	

11. Does your <u>institution's</u> 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	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.
<i>The institution's endowment portfolio investments include fossil-fuel companies and there have been no efforts to change that.</i>	

Section Total (9 out of 32)	28.1%
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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 Arkansas for Medical Sciences (UAMS) School of Medicine

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	$(42/72) \times 100 = 58.3\%$	C +
Interdisciplinary Research (17.5%)	$(6/17) \times 100 = 35.29\%$	D +
Community Outreach and Advocacy (17.5%)	$(9/14) \times 100 = 64.3\%$	B -
Support for Student-led Planetary Health Initiatives (17.5%)	$(10/15) \times 100 = 66.7\%$	B
Campus Sustainability (17.5%)	$(9/32) \times 100 = 28.1\%$	D
Institutional Grade	$(76/150) = 50.6\%$	C

Report Card Trends

Section Overview

This graph demonstrates trends in overall and section grades for the years in which UAMS has participated in the Planetary Health Report Card initiative.

Planetary Health Report Card Trends for the University of Arkansas for Medical Sciences College of Medicine

