



Planetary Health Report Card (Medicine): *Wake Forest University School of Medicine*



Wake Forest University School of Medicine

2024-2025 Contributing Team:

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Land acknowledgment: Atrium Health Wake Forest Baptist and Wake Forest University School of Medicine strive to be wise and gracious stewards of the spaces and land on which we stand and the resources we leverage to provide state of the art education, training, research and medical care to the communities we serve. It is important to recognize the longstanding history of escape, forced removal and resettlement that has brought all of us to reside on this land. We respectfully and collectively acknowledge and value the Indigenous people and nations, who have been stewards of this land throughout the generations past, and the generations to come.

The campuses of Atrium Health Wake Forest Baptist and Wake Forest University School of Medicine reside on the ancestral lands of the Tutelo, Occaneechi, and Keyauwee nations. Additional Atrium Health Wake Forest Baptist locations are located on the ancestral lands of the Saponi, Catawba, Saura, and Sissipahaw nations. We recognize that North Carolina is currently home to the following Indigenous tribes: The Eastern Band Cherokee, Coharie, Haliwa-Saponi, Lumbee, Meherrin, Occaneechi Band of the Saponi, Sappony, Tuscarora and the Waccamaw-Siouan, in addition to many other individuals belonging to Indigenous nations outside of North Carolina.

We celebrate and honor the original and present-day Indigenous people of this land, and commit to continued strategic action to respect Indigenous sovereignty and elevate Indigenous presence, healthcare needs, and contributions to our communities today.

This land acknowledgement was drafted in collaboration with the Indigenous Peoples and Allies Affinity group of Atrium Health Wake Forest Baptist.

Summary of Findings

Overall Grade	C
Curriculum	D+
<ul style="list-style-type: none"> • During the preclinical years, planetary health is incorporated into a few areas of course content. The virology simulation designed for first year students, discussion of a local, anthropogenic disturbance that impacted community health, and the connection of climate change to clinical renal outcomes were all successful in their delivery. The renal course material also tested its connection to climate on an exam, emphasizing its impact and encouraging retention. More consistent integration of planetary health content in relevant, intuitive areas will be paramount in increasing awareness, clinical applications, and testable material. • Recommendations: Collaborate with students, faculty, and course directors to identify opportunities for integration of planetary health into existing curriculum. Consider incorporating planetary health themes into the health equity curriculum, case studies, and simulations. Incorporate material that explores how the healthcare industry and patients are affected by extreme weather events to prepare students for systems-level thinking. 	
Interdisciplinary Research	A-
<ul style="list-style-type: none"> • Interdisciplinary research is directed by the Wake Forest University (WFU) Sabin Center for Environmental and Sustainability. Through these avenues, sustainability, climate change, and environmental health are open for all WFU programs' involvement. However, while involvement with the Sabin Center is available to medical students and faculty, it is not largely utilized. Community-engaged research conducted through the Maya Angelou Center for Health Equity (MACHE) and a few investigators at Atrium Health Wake Forest Baptist also have connections to planetary health, although this is not their primary focus. • Recommendations: Strengthen Wake Forest University School of Medicine's (WFUSM) relationship with the Sabin Center by coordinating planetary health research with direct clinical outcomes. Incorporate planetary health themes further into the MACHE. Amplify and champion the planetary health research being conducted by investigators at the hospital, the Sabin Center, and MACHE through publications on the website and social media to increase engagement. 	
Community Outreach and Advocacy	C-
<ul style="list-style-type: none"> • Through student initiative, community partnerships emphasizing planetary health are available for service and volunteering opportunities at WFUSM. Because these efforts are through a student interest group, they do not receive the same visibility as other programming. WFUSM also has a sustainability newsletter and 'Green Tea Chats,' virtual meetings that students, residents, and faculty can attend to learn about planetary health in healthcare. These can serve as a launching pad for student involvement with further sustainability work at the institution, but are not promoted or shared on common platforms. WFU has other opportunities for service and community advocacy for medical students in various formats. While medical students can participate, these opportunities are less utilized. • Recommendations: WFUSM can create institutional initiatives to interact with community advocacy groups for planetary health and collaborate with WFU on their Environmental Justice Forum to encourage further engagement and consistent opportunity. WFUSM can also increase visibility and awareness of the current sustainability newsletter and 'Green Tea Chats,' including them in university updates and emails as needed. 	
Support for Student-Led Initiatives	B-

- WFUSM has encouraged and supported student-led efforts in planetary health. Through their support, sustainability has gained further traction among students and has led to student involvement in institutional developments in this area. Still, the visibility and accessibility of these endeavors can be a barrier to engagement from the community, students, and faculty.
- **Recommendations:** WFUSM can create more designated opportunities for sustainability research, volunteering, and projects to streamline student and faculty involvement. WFUSM should consider a sustainability liaison position in the Student Government Association to ensure sustainability is considered in student decision-making and planning. The current planetary health efforts can also be promoted on the WFUSM website and common platforms shared by students to aid in identifying potential mentors and team members.

Campus Sustainability

C-

- While Atrium Health, the healthcare system WFUSM operates under, has committed to a 50% reduction in carbon emissions by 2030 and carbon neutrality by 2050, WFUSM itself has not committed to a climate action plan. Much of the WFUSM campus sustainability efforts are led by individuals, that with institutional support could cause a ripple effect of change across the campus.
- **Recommendations:** WFUSM should develop a strategic plan to reduce carbon emissions. Also, establishing sustainability guidelines for school-sponsored events and laboratory management will help reduce overall waste production.

Statement of Purpose

Planetary health is human health.

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

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

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

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as “the health of human civilisation and the state of the natural systems on which it depends.” For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional ‘environmental health’ examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of health professional education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term “planetary health” to satisfy the metric.
- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimises use of healthcare services.
- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:
 1. Describe how the environment and human health interact at different levels.
 2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
 3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.
- **Medical School/Department vs. Institution:** When “Medical school” is specified in the report card, this only refers to curriculum and resources offered by the School/department of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when “institution” is specified in the report card, we are referring to the university more broadly including all of its campuses. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is

specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric #19 in Curriculum Section):** This is a series of questions students are taught to ask during medical encounters that elicits patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and mould after flooding. Key components include place of residence over the lifecourse, occupational history, food and water sources (e.g. meat from industrial feeding operations, regular fishing in contaminated water, access to clean drinking water), and exposure to air pollution. Please be as specific as possible when providing evidence for this metric.
- **Elective:** The word "elective" refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.
- **Core Curriculum:** This refers to taught material that is delivered to the entire cohort of students in one year.
- **Clerkship / Outreach:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations, outreach or placements. This is a relatively short (approximately 4-8 weeks) period of study and patient-centred clinical experience that takes place as part of the undergraduate programme.
- **Clinical rotation:** This is a term used to refer to placements that students go on (e.g., ophthalmology, surgery, cardiology).
- **Physiotherapy vs Physical Therapy:** For the purposes of this report card these terms are considered interchangeable. However, physiotherapy will be used primarily.
- **Community organisations:** For most institutions, there are existing groups that are not directly affiliated with the university and exist as a product of what the community the institution exists in cares about or needs. These specific community organisations relevant to this report include those that are focused around some aspect of climate and health preservation. These community organisations can include but are not limited to local mutual aid initiatives, underserved-resource distribution groups, clean-up and nature conservation groups, community gardeners, and other environmental-related organisations. If your institution does not have access to local volunteerships with community groups, please report any community organisations your institution or school has collaborated with.
- **Climate justice:** The idea that certain population groups and geographical locations which are disproportionately more impacted by climate change are already economically and socially disadvantaged. This double vulnerability sits alongside pre-existing social justice concerns and should therefore shift policy and practice to mitigate the inequitable effects of the climate crisis.
- **Extractivism:** The removal of natural resources typically in large quantities. Within anthropology this term is often used in the context of colonialism to refer to

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

- **Global South:** Nations that often have less economic and industrial development and are typically in the southern hemisphere. These nations have been found to be disproportionately impacted by the climate crisis.
- **Low socioeconomic status (SES):** An individual or geographical area that across a variety of socioeconomic factors (e.g., income, education, race/ethnicity) is considered vulnerable. This vulnerability has been correlated to more adverse health outcomes often as a consequence of encountering more barriers in accessing and receiving healthcare.
- **Low and Middle-Income Countries (LMIC):** Countries that have lower degrees of economic affluence.
- **Anthropogenic:** Created through human activity
- **Marginalized communities:** Groups excluded from mainstream economic, educational, social, and/or cultural experiences due to race, gender identity, sexual orientation, age, physical ability, language, and/or immigration status (Sevelius et al., 2020).

Other considerations:

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

Completed in 2022 a [Literature Review by Metric](#) is available for the 2022 medicine report card metrics. We are in the process of updating this review and making it more applicable to all the disciplines. However the review serves as a rough collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

Planetary Health Curriculum

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

Curriculum: General

1.1. Did your <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?	
Yes, the medical school has offered more than one elective whose primary focus is ESH/planetary health in the past year. (3 points)	
Yes, the medical school has offered one elective whose primary focus is ESH/planetary health in the past year. (2 points)	
The medical school does not have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a lecture on planetary health. (1 points)	
No, the medical school has not offered any electives on planetary health or electives that include ESH/planetary health topics in the past year. (0 points)	
Score Assigned:	0
<i>Score explanation: At Wake Forest University School of Medicine (WFUSM), there is not currently an elective with an Education for Sustainable Healthcare of Planetary Health focus available. However, the Charlotte campus of WFUSM will be launching a two-week elective for the 2025-2026 school year focusing on these themes for qualifying fourth-year medical students.</i>	

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

Score Assigned:	2
<p><i>Score explanation: During the renal block of second year, one lecture titled, “Nephrolithiasis” mentions ‘global warming’ as a risk factor for increased renal stones with an associated graphic. This was tested on the renal exam for the 2024 second year medical students.</i></p>	

<p>1.3. Does your <u>medical school</u> curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?</p>	
<p>This topic was explored in depth by the core curriculum. (3 points)</p>	
<p>This topic was briefly covered in the core curriculum. (2 points)</p>	
<p>This topic was covered in elective coursework. (1 point)</p>	
<p>This topic was not covered. (0 points)</p>	
Score Assigned:	0
<p><i>Score explanation: Hurricane Helene occurred during the renal block at WFUSM. The resulting IV/dialysis fluid shortage was discussed by renal course directors informally throughout the rest of the block. There is no written content about extreme weather in general, but it was a constant conversation in coursework following the climate event.</i></p>	

<p>1.4. Does your <u>medical school</u> curriculum address the impact of climate change on the changing patterns of infectious diseases?</p>	
<p>This topic was explored in depth by the core curriculum. (3 points)</p>	
<p>This topic was briefly covered in the core curriculum. (2 points)</p>	
<p>This topic was covered in elective coursework. (1 point)</p>	
<p>This topic was not covered. (0 points)</p>	
Score Assigned:	2
<p><i>Score explanation: During the Metabolism and Defense (MAD) course for first year medical students, virology is covered with a supplementary clinical simulation. The simulation attributes a pandemic to the spread of Japanese encephalitis, a flavivirus, as the culprit for patient symptoms. Students interview standardized patients using skills developed in WFUSM Clinical Skills and a case-based learning course before brainstorming in small groups about what virus could cause the patients’ presentation. Follow-up questions include discussion about equitable ways to treat and prevent continued spread of the disease through epidemiology and social determinants of health content. At the simulation debrief, the inciting events for the introduction of Japanese encephalitis virus are revealed as a result of climate change. There were a few slides explaining this connection as well as considerations for the future and what vector-borne infectious disease will look like in the United States.</i></p>	

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

0

Score explanation: During the pulmonology course, there is a lecture titled "Restrictive Lung Diseases" that discusses several environmental exposures due to occupation and general contaminants such as asbestos, silica, standing water, hay, etc. However there is no direct connection to climate or environmental health highlighted in the lecture content and it is not referenced.

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

0

Score explanation: There is no mention of increased heat or climate change as a risk factor cardiovascular health anywhere in the cardiology block or other course content.

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	0
<p><i>Score explanation: There is no mention of mental or neuropsychological effects of environmental degradation and climate change anywhere in the neurology/psychology block or other course content.</i></p> <p><i>During a lecture event hosted by the WFUSM chapter of Medical Students for a Sustainable Future (MS4SF) on planetary health and medicine, the effects of increased heat on certain psychological medications was discussed briefly.</i></p>	

1.8. Does your <u>medical school</u> curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	2
<p><i>Score explanation: The Medicine and Patients in Society (MAPS) longitudinal course at WFUSM covers content related to the social determinants of health, including individual patient food and water security in a lecture titled, "Social Determinants of Health and Health Advocacy." Barriers to care such as transportation, childcare, insurance, and historical transgressions are discussed with a follow-up activity of identifying community resources to address these barriers. However, these topics are not connected directly to ecosystem health or climate change.</i></p>	

1.9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalised populations such as those with low SES, women, communities of colour, Indigenous communities, children, homeless populations, and older adults?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	1

Score explanation: The Health Equity and Health Justice Advocacy certificate programs are offered to WFUSM students as a supplement to core curricular content. The Health Equity certificate program focuses largely on community health and wellness, while the Health Justice Advocacy certificate program focuses more on policy-level change. Both of these programs emphasize the health disparities these groups face with climate change mentioned as a factor contributing to these disparities. However, there is no further discussion about climate in relation to these programs.

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

0

Score explanation: There is currently no mention of the unequal regional health impacts of climate change globally at WFUSM.

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)?

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

0

Score explanation: There is currently no mention of the reproductive health effects of industry-related environmental toxins WFUSM. However, the MAPS course includes the effects of the local 2022 Weaver Fertilizer Plant Fire on nearby residents as a part of the “Race in Medicine” lecture with an emphasis on pollution and pesticides as a general health risk, not in relation to reproductive health.

1.12. Does your medical school curriculum address important human-caused environmental threats that are relevant to the university’s surrounding community?

This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	2
<p><i>Score explanation: The 2022 Weaver Fertilizer Plant Fire, local to Winston-Salem, North Carolina is highlighted in the “Race in Medicine” lecture in the longitudinal MAPS course. It is discussed to emphasize racial disparities within the city as well as the unique health risks posed by industrial structures and their impact on local community health. This was covered in a few slides during a larger lecture as an example of some of the unique challenges to health disparities in Winston-Salem.</i></p>	

1.13. To what extent does your <u>medical school</u> emphasise the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	0
<p><i>Score explanation: There is currently no emphasis on the importance of indigenous knowledge and value systems as essential components of planetary health solutions.</i></p>	

1.14. Does your <u>medical school</u> curriculum address the outsized impact of anthropogenic environmental toxins on marginalised populations such as those with low SES, women, communities of colour, children, homeless populations, Indigenous populations, and older adults?	
This topic was explored in depth by the core curriculum. (3 points)	
This topic was briefly covered in the core curriculum. (2 points)	
This topic was covered in elective coursework. (1 point)	
This topic was not covered. (0 points)	
Score Assigned:	2

Score explanation: The 2022 Weaver Fertilizer Plant Fire, local to Winston-Salem, North Carolina is highlighted in the “Race in Medicine” lecture in the longitudinal MAPS course. It is discussed to emphasize racial disparities within the city as well as the unique health risks posed by industrial structures and their impact on local community health. This was covered in a few slides during a larger lecture as an example of some of the unique challenges to health disparities in Winston-Salem.

Curriculum: Sustainability

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

2

Score explanation: The gastrointestinal (GI) block includes a lecture titled, “Popular and Fad Diets” that has slides that cover the nutritional benefits and challenges of a vegetarian/vegan/Mediterranean diet. Their connection to climate is mentioned briefly as reasoning or justification for these diets.

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

This topic was explored **in depth** by the **core** curriculum. (3 points)

This topic was **briefly** covered in the **core** curriculum. (2 points)

This topic was covered in **elective** coursework. (1 point)

This topic was **not** covered. (0 points)

Score Assigned:

1

Score explanation: At a lecture titled, “Perspectives in Medicine: From Climate Change to Patient Care,” hosted by the WFUSM Office of Educational Excellence in partnership with the WFUSM chapter of MS4SF, the carbon footprint of healthcare systems was covered. Atrium/Advocate Health, the healthcare system that WFUSM students interact with most is also discussed as actively working to reduce its footprint. This lecture was optional and open to medical students of all years.

1.17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (points for each)	Score
The health and environmental co-benefits of avoiding over-medicalisation, over-investigation and/or over-treatment (2 points)	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 fulfil this metric. (2 points) .	2
The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes. This is commonly known as social prescribing in the UK. (1 point)	1
Environmental impact of surgical healthcare on planetary health and the climate crisis, and how can it be mitigated. (1 point)	0
The impact of anaesthetic gases on the healthcare carbon footprint and ways to reduce anaesthesia's environmental impacts, such as total intravenous anaesthesia or choosing less environmentally harmful anaesthetic gas options with reduced greenhouse gas emissions. (1 point)	0
The impact of inhalers on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers. (1 point)	0
Waste production within healthcare clinics and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting) (1 point)	0
<p><i>Score explanation: At WFUSM, pharmacology is a longitudinal course in the preclinical curriculum. Throughout preclinical pharmacology coursework, there is discussion of over medicalization and treatment. This discussion is used as reasoning for students to understand how unnecessary waste is produced and underlying conditions can be overlooked through processes like over medicalization. During the MAD block, there is a lecture dedicated to antibiotic stewardship, as well as resistance trends in various bacteria and viruses. Antibiotic resistance is linked to sustainability of treatment and therapeutic plans for various conditions, which is also mentioned during this lecture. The rheumatology, endocrine, and cardiology blocks cover non-pharmaceutical management of several diseases such as physical activity, diet, supplements, etc. These methods are emphasized to avoid medication when possible and to encourage a lifestyle that can be better suited for patients and also the planet.</i></p>	

Curriculum: Clinical Applications

1.18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?
Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum. (2 points)
Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework. (1 points)

No, there are **not** strategies introduced for having conversations with patients about climate change. (0 points)

Score Assigned:

0

Score explanation: There is currently no curricular content related to discussing climate change with patients at WFUSM.

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

Yes, the **core** curriculum includes strategies for taking an environmental history. (2 points)

Only **elective** coursework includes strategies for taking an environmental history. (1 point)

No, the curriculum does **not** include strategies for taking an environmental history. (0 points)

Score Assigned:

2

Score explanation: The longitudinal, preclinical Clinical Skills course discusses a traditional exposure history in conjunction with the pulmonology block during the second year. This includes the environmental exposures taught in the restrictive lung disease lecture taught such as occupational exposures as well as travel concerns. There is not any mention of climate or home environment-related exposures.

Curriculum: Administrative Support for Planetary Health

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

Yes, the medical school is currently in the process of making **major** improvements to ESH/planetary health education. (4 points)

Yes, the medical school is currently in the process of making **minor** improvements to ESH/planetary health education. (2 points)

No, there are **no** improvements to planetary health education in progress. (0 points)

Score Assigned:

4

Score explanation: WFUSM is currently building preclinical planetary health content to be integrated into course material as well as in research, extracurricular opportunities, and community engagement. Faculty education will begin Spring 2025 to implement pilot programs on the Winston-Salem and Charlotte campuses, including activities related to planetary health. This will be material introduced to first-year medical students during orientation, the first-year case-based learning course, the longitudinal first and second year MAPS course, the Transition to Patient Care course taught between second and third year, and the implementation of the fourth year planetary health elective. This was initiated by the WFUSM chapter of MS4SF, faculty on both

campuses, physicians in the larger Atrium/Advocate Health system, and WFUSM's first Dean of Planetary Health.

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

Planetary health/ESH topics are **well integrated** into the core medical school curriculum. (6 points)

Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum. (4 points)

Planetary health/ESH is not integrated and is primarily addressed in **(a) standalone lecture(s)**. (2 points)

There is **minimal/no** education for sustainable healthcare. (0 points)

Score Assigned:

0

Score explanation: Planetary health and sustainable healthcare are not currently covered longitudinally in the core curriculum at WFUSM.

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

Yes, the medical school has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (1 point)

No, the medical school does **not** have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare. (0 points)

Score Assigned:

1

Score explanation: Dr. David Callaway, Dean of Planetary Health has been appointed to steer the integration of planetary health into WFUSM curriculum and initiatives. He has gathered relevant faculty and students with interest in this work to collaborate closely on planning and implementation. Email: david.callaway@atriumhealth.org

Section Total (26 out of 72)

36.11%

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Interdisciplinary Research

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

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your <u>institution</u>?	
Yes, there are faculty members at the institution who have a primary research focus in planetary health or sustainable healthcare/vetcare. (3 points)	
Yes, there are individual faculty members at the institution who are conducting research related to planetary health or healthcare sustainability, OR are part of a national/international sustainability working group, but it is not their primary research focus. (2 points)	
There are sustainability researchers at the institution , but not specifically associated with healthcare/vetcare. (1 point)	
No, there are no planetary health and/or sustainability researchers at the institution at this time. (0 points)	
Score Assigned:	3
<p><i>Score explanation: The Maya Angelou Center for Health Equity at WFUSM includes researchers who cover topics related to health justice that overlap with themes of environmental justice. Also, at Wake Forest University (WFU), the Sabin Center for Environment and Sustainability supports research for undergraduate faculty members and graduate students. This center conducts research in four areas: renewable energy, biodiversity and ecosystem services, policy, enterprise & markets, centro de innovación científica Amazónica, and innovative technologies.</i></p>	

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

There is no dedicated department or institute. (0 points)	
Score Assigned:	3
<i>Score explanation: The WFU Sabin Center for Environment and Sustainability supports research for undergraduate faculty members and graduate students. This center conducts research in four areas: renewable energy, biodiversity and ecosystem services, policy, enterprise & markets, centro de innovación científica Amazónica, and innovative technologies.</i>	

2.3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your institution?	
Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda. (3 points)	
Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda. (2 points)	
No , but there are current efforts to establish a process for community members to advise or make decisions on the research agenda. (1 points)	
There is no process, and no efforts to create such a process. (0 points)	
Score Assigned:	1
<i>Score explanation: Through the development of planetary health offerings at WFUSM, a community advisory board will be included in the providing feedback and ideas to better connect the school to community needs. The board is intended to be functional by the end of the year.</i>	

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

Score explanation: WFU has a website for the [Office of Sustainability](#), which houses sustainability initiatives and student leadership/engagement opportunities. There is also a website for the [Sabin Center for Environment and Sustainability](#). WFU also has a website for their [Environmental and Epistemic Justice Initiative](#), which highlights programming, faculty, and fellows that focus on environmental justice and community health concerns. However, these websites do not provide links to the researchers' bios to read more about their work, course offerings, etc.

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

Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year. (4 points)

Yes, the **institution** has hosted at least one conference or symposium on topics related to sustainable healthcare/vetcare in the past year. (3 points)

Yes, the **institution** has hosted a conference on topics related to planetary health /sustainable healthcare/vetcare in the past three years. (2 points)

The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event. (1 point)

No, the **institution** has not hosted a conference on topics related to planetary health in the past three years. (0 points)

Score Assigned:

4

Score explanation: WFU hosted the [Environmental Justice Forum](#) last year in partnership with the Environmental and Epistemic Justice Initiative. This forum included talks from clinical and other academic researchers that are conducting community-engaged research. They also highlighted community members and efforts to instill trust between the community and the institution.

2.6. Is your institution a member of a national or international planetary health or ESH/ESV organisation?

Yes, the institution is a member of a national or international planetary health or ESH/ESV organisation. (1 points)

No, the institution is **not** a member of such an organisation. (0 points)

Score Assigned:

1

Score explanation: Atrium Health Wake Forest Baptist, the hospital affiliated with WFUSM is a member of [Practice Greenhealth](#) and has been recognized for sustainability awards through their [Environmental Excellence Awards](#).

Section Total (14 out of 17)	82.4%
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Community Outreach and Advocacy

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

3.1. Does your <u>institution</u> partner with community organisations to promote planetary and health?	
Yes, the institution meaningfully partners with multiple community organisations to promote planetary and environmental health. (3 points)	
Yes, the institution meaningfully partners with one community organisation to promote planetary and environmental health. (2 points)	
The institution does not partner with community organisations, but has participated in community focused events relating to planetary health. (1 point)	
No, there is no such meaningful community partnership. (0 points)	
Score Assigned:	3
<p><i>Score explanation: Through the WFUSM chapter of MS4SF, students can volunteer at Threshold Farm, an organization that provides sustainably farmed produce to food insecure families. These volunteer sessions include growing and harvesting produce, tending to the land, and assisting in building an outdoor retreat space. At WFU, their Campus Kitchen partners with several community organizations to distribute produce and meals. The Campus Kitchen is a garden primarily run by student volunteers that harvest produce to be delivered or prepared into meals.</i></p>	

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

Score Assigned:	2
<p><i>Score explanation: The Environmental Justice Forum is hosted once a year by the Environmental and Epistemic Justice Initiative at WFU, which is open to community members. Majority of attendees are affiliated with the university. The WFU Office of Sustainability also hosts a Speaker Series that spotlights prominent environmentalists, authors, and academics that is open to the public. Majority of attendees are undergraduate or graduate students as well.</i></p>	

<p>3.3. Does your <u>institution</u> have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?</p>	
<p>Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare. (2 points)</p>	
<p>Yes, planetary health and/or sustainable healthcare topics are regularly included in communication updates to some courses. (1 point)</p>	
<p>Students do not receive communications about planetary health or sustainable healthcare. (0 points)</p>	
Score Assigned:	0
<p><i>Score explanation: While students receive regular communication updates on programs, staff, and events, there has not been regular communication about planetary health or sustainable healthcare. The Atrium Health hospital system has signed the Health Care Sector Pledge at the White House in 2022 with goals for net zero emissions by 2050 . This plan also includes goals to increase curriculum opportunities, training, and patient education materials; this webpage provides insight but is not included in regular updates to the student body . The offerings that WFUSM provides are opt-in only, with little information available when searching online for more materials - the only way to receive news about ‘Green Tea Chats,’ virtually hosted by healthcare staff and faculty affiliated with WFUSM is via a sustainability newsletter that does not circulate to the larger student body.</i></p>	

<p>3.4. Does the <u>institution</u> or <u>main affiliated hospital trust</u> 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?</p>	
<p>Yes, the institution or main affiliated hospital trust offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health. (2 points)</p>	
<p>Yes, the institution or main affiliated hospital trust offers one course relating to planetary health and/or sustainable healthcare for post-graduate provider. (1 point)</p>	
<p>There are no such accessible courses for post-graduate providers. (0 points)</p>	
Score Assigned:	1

Score explanation: The Northwest Area Health Education Center of WFUSM provides and supports educational activities and services with a focus on primary care in rural communities. They offer one continuing education course called, “[Exploring Ethics: Must Medicine Become Trash?](#)” This course will speak about the nuisance between facilities trying to move away from disposability to sustainability.

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

Yes, the **institution** or **all affiliated hospitals** have accessible educational materials for patients. (2 points)

Some affiliated hospitals have accessible educational materials for patients. (1 point)

No affiliated medical centres have accessible educational materials for patients. (0 points)

Score Assigned:

1

Score explanation: While the medical school does not provide specific resources, Atrium Health has some educational materials on environmental health exposures available. Atrium Health has an online health tip for patients with asthma to avoid chemical irritants, smoke, and poor air quality. Additionally, the Atrium Health system has education that providers can opt to provide to patients through the Healthwise program in the following titles: Environmental Radiation Exposure, Protecting Your Skin from the Sun, Skin Cancer Prevention, Skin Damage: Solar/Prevention, Toxin Exposure, and COPD and Asthma: Air Pollution. There are also titles that patients can access directly through MyAtriumHealth such as: Child Safety: Air Pollution, Tips for Reducing Indoor Pollutants in Your Home, Purifying Your Drinking Water, Environmental Health, and Environmental Illness.

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

Yes, the **institution** or **all affiliated hospitals** have accessible educational materials for patients. (2 points)

Some affiliated hospitals have accessible educational materials for patients. (1 point)

No affiliated hospitals have accessible educational materials for patients. (0 points)

Score Assigned:

0

Score explanation: There are currently no readily accessible educational resources for patients in the school nor affiliated hospitals that address health impacts of climate change. Sources searched included online patient education tips and the extensive list of 9000+ Healthwise education library.

Section Total (7 out of 14)

50%

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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>institution</u> offer support for students interested in enacting a sustainability initiative/QI project?	
Yes, the institution <i>either</i> offers grants for students to enact sustainability initiatives/QI projects <i>or</i> sustainability QI projects are part of the core curriculum. (2 points)	
The institution encourages sustainability QI projects (to fulfil clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, but there is no student funding available and there is no requirement to participate. (1 point)	
No, the institution does not offer opportunities or support for sustainability initiatives or QI projects. (0 points)	
Score Assigned:	2
<i>Score explanation: WFUSM provides students with access to a range of grants, research awards, and funding opportunities that can be applied to a project of the student's choosing. However, it is important to note that the school does not currently offer financial support designated specifically for sustainability initiatives. Grants become available throughout each academic year from various sources.</i>	

4.2. Does your <u>institution</u> offer opportunities for students to do research related to planetary health and/or sustainable healthcare/vetcare?	
The institution has a specific research program or fellowship for students interested in doing planetary health/sustainable healthcare/vetcare research. (2 points)	
There are research opportunities for students to perform research related to planetary health/sustainable healthcare, but these require student initiative to seek these out and carry them out in their spare time. (1 point)	
There are no opportunities for students to engage in planetary health/sustainable healthcare research. (0 points)	
Score Assigned:	1
<i>Score explanation: There are currently no specific funding opportunities or programs within WFUSM or Atrium Health Wake Forest Baptist for planetary health or sustainability. However, there are experiences available for student-initiated projects, such as the Medical Student Research Program (MSRP). WFUSM has several sponsors for the MSRP, which is a full-time summer</i>	

research experience available to rising second-year medical students. MSRP does not directly call for research on sustainability in healthcare or planetary health, but such projects have been completed in the past by individual students. Last year, for example, there was one project focused on the environmental impact of the Wake Forest Baptist Radiology Department's carbon footprint and possible improvements. The [Global Health Certificate](#) program is another opportunity for student initiative through discussion of geographic and environmental determinants of health. Students at Wake Forest University School of Medicine are able to choose to complete their clinical years at the Winston-Salem or Charlotte campus. At the Charlotte campus, there are individual mentors available for students to perform research related to planetary health topics. However, students must facilitate these connections on their own, without a specific program, and the research topics covered by these individual mentors are narrow and specialty confined. Examples of research topics offered by mentors include lifecycle analysis projects on single use items within the operating room (such as foam head rests and foam ulnar nerve protectors) and research on anesthetic gas usage. Similar opportunities are not yet present on the Winston-Salem campus and projects outside of the operating room and perioperative space are not yet available, limited students engagement.

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

The institution has a webpage with specific information related to planetary health or sustainable healthcare/vetcare that includes up-to-date information on relevant initiatives and contact information of potential mentors. (2 points)

There is an institution webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the institution, but it lacks key information. (1 point)

There is **no institution** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors. (0 points)

Score Assigned:

1

Score explanation: The WFU [Office of Sustainability](#) and [Sabin Center for Environment and Sustainability](#) websites house all research opportunities related to sustainability and environmental health. However, there are currently no projects listed that provide specific information/mentors related to planetary health and healthcare. Also, none of these projects are led by the medical school.

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

Yes, there is a student organisation **with faculty support** at my institution dedicated to planetary health or sustainability in healthcare. (2 points)

Yes, there is a student organisation at my institution dedicated to planetary health or sustainability in healthcare but it lacks faculty support . (1 point)	
No, there is not a student organisation at my institution dedicated to planetary health or sustainability in healthcare. (0 points)	
Score Assigned:	2
<i>Score explanation: The WFUSM chapter of MS4SF was founded in 2023 and is currently active with faculty support. The mission of the group is to improve health equity through sustainability, climate, and environmental health education/initiatives.</i>	

4.5. Is there a student liaison representing sustainability interests who serves on a <u>department or institutional</u> decision-making council to advocate for curriculum reform and/or sustainability best practices?	
Yes, there is a student representative that serves on a department or institutional decision-making council/committee. (1 points)	
No, there is no such student representative. (0 points)	
Score Assigned:	1
<i>Score explanation: The current president of the WFUSM chapter of MS4SF is the student lead for the Planetary Health Advisory Team and Planetary Health Education Working Group. They provide student feedback, develop initiatives, and input on future WFUSM planetary health offerings.</i>	

4.6. In the past year, has the <u>institution</u> had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	Score
Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.	1
Panels, speaker series, or similar events related to planetary health that have students as an intended audience.	1
Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.	0
Cultural arts events, installations or performances related to planetary health that have students as an intended audience.	0
Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.	1

Wilderness or outdoors programs (e.g., that organise hiking, backpacking, kayaking, or other outings for students)	1
<p><i>Score explanation: Students can volunteer with Goler Garden, a garden owned by the Downtown Health Plaza that primarily treats the underserved. The produce is delivered to food insecure patients that visit this clinic. WFUSM students have a 'day of service,' where volunteering with Goler Garden is one of the options for service. Students can also volunteer with the Crossnore Communities for Children Miracle Grounds Farm, which is an "experiential and educational food forest" to help teach local children about nature and food. Threshold Farm is another student volunteering opportunity through the WFUSM chapter of MS4SF that grows, harvest, and delivers produce to food pantries for food insecure families.</i></p> <p><i>At WFUSM, the chapter of MS4SF hosted a lecture with the 'Perspectives in Medicine' lecture series funded by the Office of Educational Excellence, titled "From Climate Change to Patient Care." This event discussed climate change's impacts on health with an emphasis on health equity. WFU also hosts events for student engagement, including 'Earth Talks,' which are described as "short, student-led presentations" that focus on sustainability topics. Faculty, staff, alumni, and community members are also eligible to present, but the majority of the audience is students. WFU hosts a lecture that aims to "facilitate cross-disciplinary discussion and engagement with sustainability topics" through their Speaker Series, primarily attended by students.</i></p> <p><i>In response to Hurricane Helene, many student organizations came together to create volunteer opportunities to help those affected. This included storm recovery, blood drive efforts, supply donations, and safety kits. The WFUSM chapter of MS4SF also organized a community clean-up event in collaboration with a student service learning program which focused on a park in an underserved area of Winston-Salem.</i></p> <p><i>The Wilderness Medicine Interest Group/Certificate program has frequent outings that include camping trips and other outdoor activities. They focus on teaching medical techniques to treat health emergencies in situations with limited resources.</i></p>	
Section Total (11 out of 15)	66.66%

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Campus Sustainability

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

5.1. Does your <u>institution</u> have an Office of Sustainability?	
Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the hospital. (3 points)	
There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of hospital sustainability. (2 points)	
There are no salaried sustainability staff , but there is a sustainability task force or committee. (1 point)	
There are no staff members or task force responsible for overseeing campus sustainability. (0 points)	
Score Assigned:	3
<p><i>Score explanation: While WFU does have an Office of Sustainability that is accessible to medical students, their office is not technically affiliated with WFUSM. For this reason, medical students can work with or attend WFU's programming, but they do not hold data, programming, or initiatives in collaboration with the medical school at this time. There is one staff member at the hospital that manages sustainability efforts as a part of their other roles.</i></p>	

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

Score explanation: While Atrium Health Wake Forest Baptist has written and approved a [plan to reduce emissions](#) by 50% by 2030 and achieve net zero by 2050 and WFU has written and approved plans to be carbon neutral by 2040, WFUSM has not stated any public goals of achieving carbon neutrality. That being said, the WFUSM Winston-Salem Bowman Gray Center for Medical Education, [received a LEED platinum award in 2017](#) (greenhouse gas emissions are less than 0.004 metric tons of CO2 per square foot).

5.3. Do buildings/infrastructure used by the institution for teaching (not including the hospital) utilize renewable energy?

Yes institution buildings are **100%** powered by renewable energy. (3 points)

Institution buildings source **>80%** of energy needs from off-site and/or on-site renewable energy. (2 points)

Institution buildings source **>20%** of energy needs from off-site and/or on-site renewable energy. (1 point)

Institution buildings source **<20%** of energy needs from off-site and/or on-site renewable energy. (0 points)

Score Assigned:

1

Score explanation: To be LEED platinum certified, a building must receive 80+ points out of 110 on the LEED scale. While WFUSM's score is not fully known, one can assume that at least 20% of the school's energy is renewable since it was able to earn a platinum certification. However, the breakdown of the score is not public information and the exact amount of renewable energy use is unknown.

5.4. Are sustainable building practices utilised for new and old buildings on the institution's campus, with design and construction of new buildings and remodelling of old buildings conforming to a published sustainability rating system or building code/guideline?

Yes, sustainable building practices are utilised for new buildings on the institution's campus and the **majority** of old buildings **have been retrofitted** to be more sustainable. (3 points)

Sustainable building practices are utilised for new buildings on the institution's campus, but most old buildings have **not been retrofitted**. (2 points)

Sustainable building practices are **inadequately or incompletely** implemented for new buildings. (1 point)

Sustainability is **not considered** in the construction of new buildings. (0 points)

Score Assigned:

3

Score explanation: The Bowman Gray Center for Medical Education was [retrofitted to be more sustainable](#) from an RJ Reynolds Tobacco Co factory building into the LEED platinum certified building it is today, opening in 2016.

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

Yes, the institution has implemented strategies to encourage and provide **environmentally-friendly transportation options** such as safe active transport, public transport, or carpooling and these options are well-utilised by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default. (2 points)

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

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

Score Assigned:

2

Score explanation: The WFUSM Winston-Salem campus offers 6 scheduled routes that go to 12 different medical center locations, as well as van service that provides free transportation to 20 different medical center locations. The Winston-Salem Transit Authority also provides transport to the greater Winston-Salem area and beyond to neighboring cities (<https://school.wakehealth.edu/campus-and-community-life/transportation-and-parking>).

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

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

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

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

Score Assigned:

1

Score explanation: The WFUSM Winston-Salem campus offers a recycling program open to students and staff, but not composting programs.

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

Yes, the institution has 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. (3 points)	
There are sustainability guidelines for food and beverages, but they are insufficient or optional . The institution is engaged in efforts to increase food and beverage sustainability. (2 points)	
There are sustainability guidelines for food and beverages, but they are insufficient or optional . The institution is not engaged in efforts to increase food and beverage sustainability. (1 point)	
There are no sustainability guidelines for food and beverages. (0 points)	
Score Assigned:	2
<i>Score explanation: The Winston-Salem campus has implemented changes that have been sent to students via email and advertised throughout the building for greater awareness, including more plant-based options for student campus dining.</i>	

5.8. Does the <u>institution</u> apply sustainability criteria when making decisions about supply procurement?	
Yes, the institution has adequate sustainability requirements for supply procurement and is engaged in efforts to increase sustainability of procurement. (3 points)	
There are sustainability guidelines for supply procurement, but they are insufficient or optional . The institution is engaged in efforts to increase sustainability of procurement. (2 points)	
There are sustainability guidelines for supply procurement, but they are insufficient or optional . The institution is not engaged in efforts to increase sustainability of procurement. (1 point)	
There are no sustainability guidelines for supply procurement. (0 points)	
Score Assigned:	0
<i>Score explanation: Based on the information we have access to, we cannot confirm that the institution has implemented any sustainability criteria for supply procurement.</i>	

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

Score explanation: There are no published criteria regarding the sustainability of hosted events at the WFUSM Winston-Salem campus that the school is required to abide by.

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

Yes, the institution has **programs** and **initiatives** to assist with making lab spaces more environmentally sustainable. (2 points)

There are **guidelines** on how to make lab spaces more environmentally sustainable, but not programs or initiatives. (1 point)

There are **no** efforts at the institution to make lab spaces more sustainable. (0 points)

Score Assigned:

1

Score explanation: Lab managers have encouraged sustainable guidelines to make lab spaces more environmentally sustainable, but these are not directly endorsed by the institution. There are current efforts being made to make these guidelines streamlined, structured, and develop initiatives to encourage more widespread adoption.

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

The institution is **entirely divested** from fossil fuels **and** has made a **commitment to reinvest divested funds** into renewable energy companies or renewable energy campus initiatives. (4 points)

The institution is **entirely divested** from fossil fuels. (3 points)

The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments. (2 points)

The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organised advocacy** for divestment. (1 point)

Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that. (0 points)

Score Assigned:

0

Score explanation: Based on the information we have access to, it does not appear that the institution's endowment portfolio has divested from fossil-fuel companies.

Section Total (16 out of 32)

50.0%

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Grading

Section Overview

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

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

**Within each grade bracket, a score in the top 5% (_5 to _9%), receives a “+”, and a score in the bottom 5% (_0- _4%) receives a “--”. For example, a percentage score of 78% would be a B+.*

Planetary Health Grades for the Wake Forest University School of Medicine

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	$(26/72) \times 100 = 36.11\%$	D+
Interdisciplinary Research (17.5%)	$(14/17) \times 100 = 82.35\%$	A-
Community Outreach and Advocacy (17.5%)	$(7/14) \times 100 = 50\%$	C
Support for Student-led Planetary Health Initiatives (17.5%)	$(11/15) \times 100 = 66.66\%$	B
Campus Sustainability (17.5%)	$(16/32) \times 100 = 50.0\%$	C
Institutional Grade	$(A \times 0.3 + B \times 0.175 + C \times 0.175 + D \times 0.175 + E \times 0.175) = 54.41\%$	C

