



Planetary Health Report Card (Medicine): *University of Bristol*



2022-2023 Contributing Team:

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Summary of Findings

Overall	C+
<u>Curriculum</u>	B
<ul style="list-style-type: none"> University of Bristol includes planetary health in the core curriculum appropriately. In the first and second years of the medical curriculum, various aspects of planetary health are discussed in standalone lectures. Elective student choice projects which focus on key aspects of planetary health are also offered and funded by the medical school. Recommendations: Creation of a lecture focusing on the cardiorespiratory effects of pollution discussing the most polluted points in Bristol. The effect of planetary health on marginalised populations could also be further emphasised in the course. Furthermore, material regarding how to have conversations about planetary health and the co-benefits with patients could be integrated. 	
<u>Interdisciplinary Research</u>	B
<ul style="list-style-type: none"> The Elizabeth Blackwell Institute and the Cabot Institute conducts research related to Planetary Health within the University of Bristol. The University of Bristol also holds multiple symposiums and conferences related to planetary health. Recommendations: Bristol Medical school could gear their research agenda more towards Planetary Health as it is not currently the main focus. The Bristol Medical School should consider PHA or GCCHE membership 	
<u>Community Outreach and Advocacy</u>	D+
<ul style="list-style-type: none"> The University of Bristol engages well with the community but could do more to help educate patients about more sustainable healthcare practices and the health effects of climate change. Recommendations: To partner with more community organisations. To include opt-in regular planetary health related articles within the bulletins (medical student society and medical school) and to create planetary healthcare and sustainable healthcare educational materials for patients. 	
<u>Support for Student-Led Initiatives</u>	C-
<ul style="list-style-type: none"> Support for student-led initiatives from Bristol Medical School is strong and they are actively trying to improve ESH in the curriculum. These efforts are propelled by Prof. Thompson and Prof. Tilling, who act as the Sustainability Co-leads for the Medical School. The Medical School has also opted to fund a student-led sustainability champion role. Recommendations: Support for student-led activity is plenty. However, collaboration with the Galenicals (the medical student society) to create a sub society of medical students passionate about sustainable healthcare and planetary health could prove advantageous. 	
<u>Campus Sustainability</u>	B+
<ul style="list-style-type: none"> The University of Bristol puts substantial effort in trying to make the campus more sustainable such as divesting from fossil fuels, photovoltaic panels, waste management programs and more. Recommendations: The University of Bristol could set more stringent sustainability guidelines for procurement and events. They have begun retrofitting buildings and should continue this practice. 	

Statement of Purpose

Planetary health is human health.

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

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

With the purpose of increasing planetary health awareness and accountability among 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 centred on environmental health impacts 5) medical school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as “the health of human 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 minimises use of healthcare services.
- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:
 1. Describe how the environment and human health interact at different levels.
 2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.
 3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.
- **Medical School vs. Institution:** When “medical school” is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when “institution” is specified in the report card, we are referring to the university more

broadly. Any resource reasonably accessible by medical students, no matter where in the institution the resource comes from or if it is specifically targeted for medical students, can meet this metric.

- **Environmental history (Metric #19 in Curriculum Section):** This is a series of questions providers are taught to ask during medical encounters that elicit 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.
- **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>Score explanation:</i> The University of Bristol Medical Curriculum offers several elective student choice projects at the end of year 3 which engages the student in education for sustainable healthcare or planetary health. Some of these include: How green is my clinic?, The wild medicine of nature, Culinary medicine, The sustainable healthcare boot camp, At sea with disability and Blue Health.</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>Score explanation:</i> This topic is covered in depth by Professor Trevor Thompson in his annual lecture on 'Planetary Pathology'. In this lecture the effects of climate change such as increasing extreme weather events and the ramifications on populations which are most vulnerable to such are discussed.</p>	

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.

Score explanation: This topic is covered in depth in 2 lectures delivered by Prof. Trevor Thompson in 'Planetary Pathology' and 'Planetary Physiology'. The effects of heatwaves, storms and floods on different populations are discussed.

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.

Score explanation: The Global Health lecture in the first year of Bristol's Medical School briefly discusses the changing pattern of infectious diseases like malaria and dengue fever. This is also glossed over in the Year 3 HUB Session interactive workshop.

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

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

Score explanation: At Bristol's Medical School, the respiratory health effects of climate change and health pollution are briefly touched upon in lectures about pulmonary physiology in Year 2. However, there are plans to improve coverage of this topic.

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.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p><i>Score explanation: The general health effects of increased heat are talked about in the lectures 'Planetary Pathology' and 'Planetary Physiology'. However, the effects of climate change on the cardiovascular system are not taught in detail yet</i></p>	

<p>7. Does your <u>medical school</u> curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?</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>Score explanation: This topic, specifically the effect of flooding on mental health as well as growing climate anxiety, is discussed in depth in the 'Global Health' lecture delivered in the first year of Bristol Medical School.</i></p>	

<p>8. Does your <u>medical school</u> curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?</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>Score explanation: This was the crux of the 'Global Health' lecture delivered in the first year of BMS where the planet is described as a living organism and climate change as a disease of the system. There is also an student chosen elective offered in the third year called 'Culinary Medicine' and 'The Sustainable Healthcare Boot Camp'.</i></p>	

<p>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?</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>Score explanation: The effect of climate change on marginalised populations and those most at risk are discussed in depth in the 'Planetary Pathology' lecture in the second year of Bristol Medical School. Here the effects of flooding in the short and long-term, droughts, rainforest destruction and more are explored.</i></p>	

10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?	
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>Score explanation: The unequal regional health impacts of climate change globally are studied in the 'Planetary Pathology' lecture in cases such as the melting of the Tuni glacier, heatwaves in Greenland, droughts in Iraq and more.</i></p>	

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

11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p><i>Score explanation: This is not currently covered in Bristol Medical School's core curriculum or elective coursework.</i></p>	

12. Does your <u>medical school</u> 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.
<i>Score explanation: This is not currently covered in Bristol Medical School's core curriculum or elective coursework.</i>	

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?	
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.
<i>Score explanation: This is not currently covered in Bristol Medical School's core curriculum or elective coursework.</i>	

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?	
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>Score explanation: This is not currently covered in Bristol Medical School's core curriculum or elective coursework.</i>	

Curriculum: Sustainability

15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored 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.

Score explanation: The benefits of a plant-based diet for the person and environment are taught about in depth within the 'What's Healthy? The Bristol Diet 2.0' lecture. There is also a student choice project offered in the third year which focuses on this aspect and food security called 'Culinary Medicine'.

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.

Score explanation: The carbon footprint of healthcare systems as a topic is thoroughly reviewed in a 'Sustainable Healthcare' lecture delivered in the third year of Bristol Medical School. This lecture focuses on the scopes and carbon emissions generated by the UK's National Health Service.

17. Does your medical school curriculum cover these components of sustainable clinical practice in the core 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 fulfil 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)

Score explanation: Many of these points are covered in the core curriculum. Some of these learning points are specifically reviewed in the 'Sustainable Healthcare' lecture delivered in year 3 such as:

	<ol style="list-style-type: none"> 1. <i>Overdiagnosis and overtreatment in the case of arthroscopic surgery in the elderly with knee pain</i> 2. <i>The harmful environmental effects of CHG anaesthetic agents and MDI propellants</i> 3. <i>Better approaches to hospital catering</i>
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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
<p><i>Score explanation: This is not currently covered in Bristol Medical School's core curriculum or elective coursework.</i></p>	

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.
<p><i>Score explanation: This is not currently covered in Bristol Medical School's core curriculum or elective coursework. The closest thing to this would be a social history taking for exposure in the basic clerking framework recommended by most hospital academies e.g. if they were a labourer and worked with asbestos often. However, there are plans for this to be a potential OSCE station in the future and for a greater emphasis to be had on exploring links between patient's health and the environment.</i></p>	

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.
<p><i>Score explanation: The Bristol Medical School is very active in this regard. Professor Trevor Thompson and Professor Kate Tilling have been appointed as the co-leads for sustainability in the medical school. Most of the ESH lectures are delivered by Prof. Thompson. On top of this the Medical School has also opted to fund a student-led sustainability champion role (Matthias Mitra for 2023) which is a service offered by the student union to get students involved in the implementation of ESD (ESH) development.</i></p>	

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.
<p><i>Score explanation: The topics aforementioned are appropriately integrated into the core curriculum and there are continuous efforts to improve this within the Bristol Medical School.</i></p>	

22. Does your <u>medical school</u> 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.
<p><i>Score explanation: As mentioned in the score explanation for Q20. The Bristol Medical School has appointed Prof. Thompon and Prof. Tilling as the co-leads for sustainability in the Medical School. The Medical School also funds an SU mediated student-led sustainability champion role.</i></p>	

Section Total (47 out of 72)	65%
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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 emphasised.*

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>Score explanation: The University of Bristol Medical School has faculty members who have a primary research focus of planetary health research and healthcare sustainability namely:</i></p> <ul style="list-style-type: none"> ● <i>Dr Adam Trickey:</i> <ul style="list-style-type: none"> ○ https://www.bristol.ac.uk/people/person/Adam-Trickey-042b4158-f4dc-4e56-8340-bfb77e6bed86/ ● <i>Professor Peter Vickerman:</i> <ul style="list-style-type: none"> ○ https://www.bristol.ac.uk/people/person/Peter-Vickerman-4258fd15-e826-409b-b142-a7d04cb08270/ ● <i>Dr Dan Bernie:</i> <ul style="list-style-type: none"> ○ https://research-information.bris.ac.uk/en/persons/dan-j-bernie <p><i>The Cabot Institute for the Environment and the Elizabeth Blackwell Institute for Health Research at the University of Bristol has also begun a new collaboration called the “Climate Change and Health Research Programme”. The programme brings together experts from different disciplines to understand and address the health impacts of climate change. There is a steering group that meets quarterly to address the programme which includes funding calls and funded PhD opportunities.</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>Score explanation:</i></p> <ul style="list-style-type: none"> • <i>The Elizabeth Blackwell Institute for Health Research within the University of Bristol works alongside the Cabot Institute for the Environment in incorporating planetary health in research that is either being planned or conducted at the university.</i> https://www.bristol.ac.uk/blackwell/news/2021/cop26-climate-and-health-blog.html • <i>Cabot Institute for the Environment – a diverse community of experts focusing on protecting the environment and identifying ways of living more cohesively with our planet. The institute delivers evidence base and solutions to tackle challenges of food, security, water, low carbon energy, city futures, environmental change, and natural hazards and disaster risk.</i> http://www.bristol.ac.uk/cabot/ 	

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 <u>medical school</u>?	
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.
<i>Score explanation: This is currently not a feature of the Bristol Medical School Interdisciplinary Research.</i>	

4. Does your <u>institution</u> have a planetary health website that centralises ongoing and past research related to health and the environment?	
3	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.
2	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.
1	The institution has an Office of Sustainability website that includes some resources related to health and the environment.
0	There is no website.

Score explanation: The University of Bristol website has a succinct subpage which is easy to use and centralises resources. It includes a section on what they're currently involved in across a variety of sectors including upcoming opportunities and projects for both students and staff. It also contains information on the Green Apple Scheme – which provides grants of up to £1500 for sustainability projects.

<https://www.bristol.ac.uk/sustainability/>

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

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

Score explanation: The Population Health Science Institute (PHSI) at the University of Bristol often holds internal conferences advertised on <https://phsi.blogs.bristol.ac.uk/events/past-events/>. The most recent event was the PHSI Annual Symposium on Climate Change and Global Health.

6. Is your medical school a member of a national or international planetary health or ESH organisation?

1	Yes, the medical school is a member of a national or international planetary health or ESH organisation
0	No, the medical school is not a member of such an organisation

Score explanation: The University of Bristol Medical School is not currently a member of any planetary health alliance but plans to join the PHA and or the GCCHE next academic year.

Section Total (12 out of 17)

71%

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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.*

1. Does your medical school partner with community organisations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organisations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organisation to promote planetary and environmental health.
1	The institution partners with community organisations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p><i>Score explanation: The University of Bristol has been partnering with multiple community organisations regarding planetary and environmental health, the city was even awarded the European Green Capital status in 2015. However, the medical school is not usually directly involved.</i> https://www.bristol.ac.uk/cabot/what-we-do/green-capital/</p>	

2. Does your medical school offer community-facing courses or events regarding planetary health?	
3	The medical school offers community-facing courses or events at least once every year.
2	The medical school offers courses or events open to the community at least once per year, but they are not primarily created for a community audience.
1	The institution has offered community-facing courses or events, but the medical school was not involved in planning those courses or events.
0	The institution/medical school have not offered such community-facing courses or events.
<p><i>Score explanation: The University offers several community-facing courses and or events regarding planetary health. An example of one of these events would be the excellent 5.5 hour ‘How do our surroundings affect our health?’ workshop hosted by Prof. Phil Taylor and Prof. George Davey-Smith which delves into a whole host of topics</i> https://www.eventbrite.com/e/how-do-our-surroundings-affect-our-health-tickets-512882213507</p>	

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.

Score explanation: There is currently no regular coverage of issues related to planetary health / sustainable healthcare in university update communications but these sorts of communications sometimes appear in the Galenicals (Bristol Medical School's Society) and medical school's bulletin when there may be an event, opportunity or when the subject is more topical.

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

Score explanation: The Bristol Medical School does not currently have postgraduate educational activities as such.

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 centres have accessible educational materials for patients.

Score explanation: The Bristol Medical School does not currently have accessible educational materials for patients about environmental health exposures.

6. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about climate change and health impacts?

2	Yes, all affiliated hospitals have accessible educational materials for patients.
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1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated hospitals have accessible educational materials for patients.
<i>Score explanation: The Bristol Medical School does not currently have accessible educational materials for patients about climate change and its health impacts.</i>	

Section Total (5 out of 14)	36%
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Support for Student-Led Planetary Health Initiatives

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

1. Does your <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 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.
0	No, neither the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.
<p><i>Score explanation: The Bristol Medical School has elected to fund a student-led Sustainability Champion role within the Medical School who carries out an effective QI project through initiatives like the PHRC. Students in their fifth year also have to complete a guided QI project, some of these may include elements of sustainability.</i></p>	

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.
<p><i>Score explanation: There are student choice projects facilitated by Bristol Medical School which offer this. Especially those offered in the third; How green is my clinic?, The wild medicine of nature, Culinary medicine, The Sustainable healthcare boot camp and At sea with disability and Blue Health. There is also potential for this in the year 5 QI project in the general practice block.</i></p>	

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	
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school and/or contact of information of potential mentors.	
2	The medical school has a web page with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a 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.

Score explanation: There is currently no medical-school specific webpage for locating these resources but there are plans for collaboration with the school's medical student society to create this resource.

4. Does your medical school have registered student groups dedicated towards fostering a culture of planetary health engagement, scholarship, and advocacy on campus, supported by faculty advisors?	
2	Yes, there is a student organisation with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organisation at my medical school dedicated to planetary health or sustainability in healthcare but it lacks faculty support .
0	No, there is not a student organisation at my institution dedicated to planetary health or sustainability in healthcare.

Score explanation: The Bristol Student Union affiliated with the University has societies as well as funded roles for this. However, the medical school does not have their own student liaison group at the moment.

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for curriculum reform and/or sustainability best practices?	
1	Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.
0	No, there is no such student representative.

Score explanation: There is currently a sustainability champion role for Bristol Medical School but the role does not currently participate in a 'decision-making council' for curriculum reform.

6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	
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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 organise hiking, backpacking, kayaking, or other outings for students)
<p><i>Score explanation: The University of Bristol offers co-curricular planetary health programs such as Student choice projects (host of topics) like 'Leadership in the Wilderness', guest speakers and the aforementioned lectures by Prof. Thompson.</i></p>	

Section Total (6 out of 15)	40%
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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 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.*

1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of medical school and/or hospital sustainability.
1	There are no salaried sustainability staff , but there is a sustainability task force or committee
0	There are no staff members or task force responsible for overseeing campus sustainability
<p><i>Score explanation: The institution has an office for sustainability with multiple full-time staff. The hospital academies that partner with Bristol Medical School also have sustainability staff but they are under the National Health Service.</i></p> <p>http://www.bristol.ac.uk/sustainability/contacts/</p>	

2. How ambitious is your institution/medical school 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
<p><i>Score explanation: The University of Bristol has set the target of reaching net zero scope 1 and 2 carbon emissions from our buildings by 2030, and are committed to getting scope 3 emissions to net zero as soon as possible.</i></p> <p>https://www.bristol.ac.uk/sustainability/net-zero-carbon-bristol/</p>	

	Most NHS hospital academies that partner with the University of Bristol such as the Bristol Royal Infirmary have also set similar goals to be net-zero and or carbon-neutral by 2030.
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3. Do buildings/infrastructure used by the <u>medical school</u> for teaching (not including the hospital) utilise 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.
<i>Score explanation: Unable to obtain relevant information.</i>	

4. Are sustainable building practices utilised for new and old buildings on the <u>medical school</u> campus, with design and construction of new buildings and remodelling of old buildings conforming to a published sustainability rating system or building code/guideline?	
3	Yes, sustainable building practices are utilised 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 utilised 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.
<i>Score explanation: All new buildings by the University of Bristol have planning requirements for renewable energy (https://www.bristol.ac.uk/sustainability/doing/our-achievements/renewable-energy/). However, most older buildings have not yet been retrofitted with sustainable technology.</i>	

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-utilised 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.
<p><i>Score explanation: For commuting to and from placements, Bristol Medical School encourages and reimburses students who car-pool. For the way in which medical students are taught in Bristol, this is the most efficient way of commuting. Most other means of more planetary friendly transport are currently unfeasible and or inaccessible.</i></p>	

6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminium/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.
<p><i>Score explanation: The University of Bristol has both compost and recycling programs accessible to students and staff.</i> http://www.bristol.ac.uk/sustainability/doing/waste/</p>	

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has adequate sustainability requirements for food and beverages, including meat-free days or no red-meat, and is engaged in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are insufficient or optional . The medical school is engaged in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are insufficient or optional . The medical school is not engaged in efforts to increase food and beverage sustainability.
0	There are no sustainability guidelines for food and beverages.
<p><i>Score explanation: The University of Bristol has adequate sustainability requirements for catering such as meat-free Mondays with a sustainable food and beverage strategy put in place.</i> http://www.bristol.ac.uk/sustainability/doing/food/</p>	

8. Does the medical school or institution apply sustainability criteria when making decisions about supply procurement?	
3	Yes, the medical school has adequate sustainability requirements for supply procurement and is engaged in efforts to increase sustainability of procurement.

2	There are sustainability guidelines for supply procurement, but they are insufficient or optional . The medical school is engaged in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are insufficient or optional . The medical school is not engaged in efforts to increase sustainability of procurement.
0	There are no sustainability guidelines for supply procurement.
<p><i>Score explanation: The University has referred to guidance that can be used to help sustainable procurement- Sustainable Impact Assessments, Flexible Framework and Procurement's Policies and Procedures. This has led to Procurement earning the CIPS Ethical Mark. However, it is guidance rather than compulsory, the University is developing guidance and tools to aid sustainable sourcing decisions.</i></p>	

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.
<p><i>Score explanation: There are sustainability guidelines provided by the University of Bristol through different mediums such as the e-pamphlet attached below. However, adherence is not currently compulsory.</i> https://bristol.ac.uk/media-library/sites/green/documents/Sustainable-Events-Guide.pdf</p>	

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.
<p><i>Score explanation: There are multiple cross-disciplinary programs and initiatives being run by sustainability technicians within the University to make lab spaces more environmentally sustainable such as making the move back to glass lab equipment, pipette recycling and running the freezers warmer.</i> https://www.bristol.ac.uk/sustainability/doing/labs/</p>	

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 organised advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.
<i>Score explanation: The University of Bristol became completely divested from fossil fuels in February of 2020.</i>	

Section Total (25 out of 32)	78.13%
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Grading

Section Overview

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

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

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

Planetary Health Grades for the University of Bristol School of Medicine

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	$(47/72) \times 100 = 65.28\%$	B
Interdisciplinary Research (17.5%)	$(12/17) \times 100 = 70.58\%$	B
Community Outreach and Advocacy (17.5%)	$(5/14) \times 100 = 35.71\%$	D+
Support for Student-led Planetary Health Initiatives (17.5%)	$(6/15) \times 100 = 40\%$	C-
Campus Sustainability (17.5%)	$(25/32) \times 100 = 78.13\% \%$	B+
Institutional Grade	58.86%	C+

Report Card Trends

Section Overview

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

