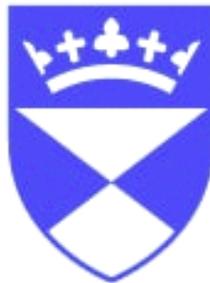


Planetary Health Report Card: *University of Dundee, School of Medicine*



2020-2021 Contributing Team:

- Students: Grace Reilly, Hannah Farquhar
- Faculty Mentors: Tim Smith
- Primary Contact: Grace Reilly, gareilly@dundee.ac.uk

Summary of Findings

Curriculum	C+
<ul style="list-style-type: none"> • Dundee Medical School has planetary health embedded into the curriculum. There are excellent Student Selected Components, and significant improvements are planned for the next few years. • The medical school should strive to incorporate the theme of planetary health throughout the curriculum as opposed to single lectures containing all the information. In addition, the unequal impact of climate change should be taught within the curriculum. 	
Interdisciplinary Research	B
<ul style="list-style-type: none"> • The University of Dundee has multiple dedicated researchers exploring issues surrounding planetary health. Social Sciences faculty have significant involvement, and the medical school should seek to be more involved in the interdisciplinary research, particularly with regards to healthcare. • Grand Rounds has proved a fantastic way to raise awareness of planetary health in our community, and the dedicated page on the medical school internal site helps to keep students and staff up to date. However, the University is not a member of the Planetary Health Alliance or Global Consortium, so this should be a priority in the future. 	
Community Outreach and Advocacy	F+
<ul style="list-style-type: none"> • The University has organised multiple events that raise awareness and promote planetary health within our community. Grand Rounds within the medical school has, on multiple occasions, explored topics relating to planetary health, all of which are available for anyone to view on youtube. • As far as we have found, there are no existing relationships with community organisations, so this is an area the medical school should seek to improve on. Similarly, there is a lack of information available to patients around the relationship between climate change and health. More documentation could be created and distributed as part of a Student Selected Component. 	
Support for Student-Led Initiatives	C
<ul style="list-style-type: none"> • There are many opportunities at the medical school for students to get involved in research, and the faculty is supportive of this. However, there are no specific planetary health projects for students and no advertised funding. The medical school could look to integrate these opportunities into the existing DCAT programme. • Additionally, the medical school could aim to advertise potential mentors on their Planetary Health website. 	
Sustainability	C-
<ul style="list-style-type: none"> • The University as a whole has multiple sustainable initiatives and goals; however, the medical school could try to be more involved in these schemes. We recognise it is difficult for the faculty to control the structural aspects of the medical school as it is part of the hospital, and a lot of these factors regarding usage of old buildings and power supply are out of their control. • It would also be beneficial if the medical school implemented initiatives to encourage or reward environmentally friendly commuting options. 	

Statement of Purpose

Planetary health is human health.

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

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

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

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 change. Therefore, it is critical that medical students are trained to understand the health effects of climate change, as well as planetary health more broadly. Topics like the changing geography of vector-borne diseases, the health consequences of air pollution, environmental health inequities, and disaster response principles must be part of every medical school's core curriculum.

Curriculum: General

1. Did your medical school offer elective courses 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>The lecture-based medical-school-specific electives at Dundee are called Student Selected Components (SSCs).</p> <p>In first year, there is an SSC called ‘<i>Global Health: How do social, cultural, environmental, political and economic factors affect health around the world?</i>’ where the effect of the environment on health is discussed using a case study. This is a longitudinal SSC where students study the topic throughout the year and submit an essay at the end.</p> <p>In second year, students complete one SSC block that lasts for 4 weeks. And in third year, students complete two SSC blocks that last 4 weeks each. The format of these electives are more in depth and hands on compared to first year. The two SSCs available for 2nd and 3rd year that cover the topics of planetary health and sustainability are shown below. It should be noted that there is also the option to self-propose an SSC topic.</p> <ul style="list-style-type: none"> - ‘<i>The Natural Health Service: Biodiversity, Ecosystems and Human Health</i>’ where students have the opportunity to study the relationship between human health and the environment. - ‘<i>Ecologically Sustainable Clinical Practice</i>’ in which students undertake a SusQI project to improve the sustainability of the clinical skills teaching centre at the University of Dundee, School of Medicine. The projects last year focused on reusing equipment, increased recycling and type of waste produced. 	

Curriculum: Health Effects of Climate Change

2. Does your medical school curriculum address the relationship between extreme temperature health risks and climate change, as well as the socioeconomic/racial disparities in extreme heat exposure?

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

In a first year ‘Disaster Scenario’ Tutorial the relationship between extreme temperature health risks and climate change was briefly covered. The tutorial was based on the impact of climate change on the frequency of natural disasters, using the examples of Typhoon Haiyan and 2010 Haiti earthquake. The effects of climate change on health and wellbeing were discussed.

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

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

In a first year public health lecture on nutrition, the impact of extreme weather on food production and the greater global health was briefly discussed. It was described that extreme weather, such as droughts and floods as a result of global warming, can impact the success of growing crops. This in turn increases the price of food and increases the prevalence of malnutrition. It was also stated that global warming is already estimated to increase food prices by 20%.

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.
<p><i>Disaster Scenario Lecture</i></p> <p>Similar to metric 2 in the disaster scenario tutorial there is mention of climate change causing an increase in vector and zoonotic diseases. There was also a PDF for further reading titled ‘Public Health Impact of Disasters’ published by the Australian Journal for Emergency Medicine. The article explores the acute illnesses (particularly infectious diseases) and chronic effects in addition to the neuropsychological impact of disasters on public health.</p>	

5. Does your medical school curriculum address the cardiorespiratory health effects of climate change, including air pollution?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p>Again, in the Disaster Scenario tutorial the impact of climate change on asthma, respiratory allergies, airway, cardiovascular disease and stroke are mentioned. Additionally, the impact air pollution has on other diseases such as Parkinson’s was mentioned. Finally, natural disasters were mentioned in relation to heart disease, diabetes and respiratory conditions.</p>	

6. Does your medical school curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
<p>This metric was covered in the year one Disaster Scenario tutorial. It discusses the relationship between climate change and mental health/stress disorders. In addition the unpredictable nature of the crisis and how individuals will react is acknowledged. This includes discussion on potential conflict, geo-political</p>	

tensions in addition to individual concerns of food security. Similarly to previous metrics, the further reading article discusses the psychological impact of natural disasters.

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

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

The explanation for this metric is similar to that of number 3. In the first year public health lecture titled nutrition, the relationships between health, food security and climate change were addressed. It was acknowledged that climate change is causing droughts and floods and other extreme weather conditions and that these conditions make it harder to grow crops and increase the price of food as a result. Higher food prices increase the risk of malnutrition. It was described that this is especially the case in poorer countries who are most affected by both climate change and food insecurity. Statistics were provided on the rise in food prices in the UK and emphasis was made that these rises disproportionately affect poorer households more.

In this lecture, there was also a link to a gov.uk PDF called ‘What is a sustainable healthy diet?’ in which the interdependent relationship between the food system and climate change are clearly described.

<https://assets.publishing.service.gov.uk/media/57a089dfe5274a27b20002df/FCRN-sustainable-healthy-diet.pdf>

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

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

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

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

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

10. Does your medical school curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	This topic was explored in depth by the core curriculum.
2	This topic was briefly covered in the core curriculum.
1	This topic was covered in elective coursework.
0	This topic was not covered.
As part of the gynaecology student selected component available in third year, there were workshops on infertility and the environmental impacts. In addition, the history taking sessions included asking patients about environmental factors.	

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

12. Does your medical school curriculum address the unique climate and environmental health challenges that have impacted and are impacting Indigenous communities?	
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.

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

Curriculum: Sustainability

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

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

In the elective SSC ‘The Natural Health Service’, the environmental and health co-benefits of a plant-based diet were discussed in depth. We watched a documentary on sustainable beef and another on sustainable fishing as well as comparing the carbon footprints of different diets.

15. Does your medical school curriculum highlight the waste generated by the healthcare system and identify ways to advocate for and implement sustainable best practices in health care?

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

In the two SSCs ‘The Natural Health Service’ and ‘Ecologically Sustainable Clinical Practice’, the issue of waste was discussed in detail. A guest lecturer was invited to teach the students on this SSC about pharmaceutical waste. In addition, the students also received teaching from clinical doctors who are making the everyday practices within their clinics more sustainable by changing the type of

anaesthetic gasses used for example. The students also visited the waste management site in the hospital and met with the waste managers to discuss possible improvements. Finally, the students conducted small projects using PDSA cycles to explore practical solutions to waste in the clinical skills teaching centre such as recycling waste, reusing old equipment, alternative waste bag tagging system and inventive new simulation props.

In addition, this topic was covered in the year two sustainability workshop as well as the year four acute care block.

Curriculum: Clinical Applications

16. In training for patient encounters, does your medical school’s curriculum introduce strategies to have conversations with patients about the health effects of climate change?

2	Yes, there are strategies introduced for having conversations with patients about climate change in the core curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in elective coursework.
0	No, there are not strategies introduced for having conversations with patients about climate change

There are currently no strategies introduced for having conversation with patients about climate change. This was confirmed by the Academic Lead for Clinical Communication Skills.

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

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

Within the Clinical Communication Skills longitudinal programme, students are trained to take an environmental history to explore risks, specific to the presenting medical condition such as asbestos exposure, pets, building work and stress. This information has been confirmed by the Academic Lead for Clinical Communication Skills.

Curriculum: Administrative Support for Planetary Health

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

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

The medical school has recently appointed a sustainability lead to coordinate teaching in the core curriculum along with elective projects students can be involved in. The sustainability lead has already introduced carbon footprinting and SusQI workshops in the GP block of second year. In 4th and 5th year, they are piloting sustainable healthcare and sustainable anaesthetic teaching in Acute Care blocks. Additionally, there are plans to add sustainable nutrition, public health and ethics teaching in 2022. Finally, faculty development sessions are being planned to help staff integrate sustainability into their educational practice.

The medical school is in the process of a curriculum review and a vertical theme titled 'The Bigger Picture' is being incorporated into the course. 'The Bigger Picture' which includes a variety of aspects of medicine that are broader than what happens between clinical teams and patients in clinical settings.

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

6	Planetary health/ESH topics are well integrated into the core medical school curriculum.
4	Some planetary health/ESH topics are appropriately integrated into the core medical student curriculum.
2	Planetary health/ESH is not integrated and is primarily addressed in (a) standalone lecture(s).
0	There is minimal/no education for sustainable healthcare.

Over the three pre-clinical years at the university, there are lecture series that discuss climate change, planetary health and sustainability.

First year - nutrition and disaster tutorials
 Second year - Sustainability and quality improvement session
 Second and third year can choose additional elective projects.

In addition, sustainability teaching has now started in the clinical years in the form of tutorials.

20. Bonus: Does your medical school have a program that offers incentives for faculty/departments to develop new planetary health/ESH courses and/or incorporate planetary health/ESH into existing courses?

1*	Yes, the medical school has an incentive program.
0	No, the medical school does not have an incentive program.

As was decided at the PHRC meeting, the Dundee Medical School appointed Lead for Healthcare Sustainability Teaching fulfills this criteria.

Additionally, as the medical school is part of NHS Tayside, faculty (whether clinical or not) as well as students can be recommended for a STAR award (starting later this year) in recognition of their efforts to reduce their climate impact. This sustainability section of the STAR award has been created by the NHS Tayside sustainability group.

Section Total (33 out of 58)	33
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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 emphasized.*

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
4	Yes, there are faculty members at the School of Medicine who have a primary research focus in planetary health and healthcare sustainability.
3	Yes, there are faculty members at the School of Medicine who have a primary research focus in a planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Medicine who are conducting research related to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the institution, but none associated with the medical school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or medical school at this time.
<p>Dr Tim Smith is an anaesthetist at Ninewells and is the Lead for Healthcare Sustainability Teaching within the medical school. He is currently undertaking a doctoral degree with the research project based on Environmental, Safety and Health.</p> <p>In addition, there is a Healthcare Improvement Bachelors Medical Science student conducting research into the sustainable use of nitrous oxide (a greenhouse gas) in Ninewells maternity unit.</p>	

2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?	
3	There is at least one dedicated department or institute for interdisciplinary planetary health research.
2	There is not currently a department or institute for interdisciplinary planetary health research, but there are plans to open one in the next 3 years.

1	There is an Occupational and Environmental Health department, but no interdisciplinary department or institute for planetary health research.
0	There is no dedicated department or institute.
<p>Within the Law department at the UoD, there is a dedicated research team that specialise in environmental law.</p> <p><i>'We are one of the leading law schools for environmental law research in the UK with experts in international, national and multi-level environmental governance. Particular areas of expertise include water law, sustainable development, biodiversity and ecosystems management, and environmental regulation' - Research in Law Webpage</i></p> <p>The webpage also highlights six interdisciplinary research staff who belong to both the Law department and the School of Social Sciences or the Centre for Energy, Petroleum and Mineral Law & Policy.</p>	

3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice advise the climate + environmental research agenda.
1	No, but there are current efforts to establish a process for community members to advise or make decisions on the research agenda.
0	There is no process, and no efforts to create such a process.

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

<https://www.dundee.ac.uk/estates/energy-environment/>

This webpage is within the Estates and Buildings website. There is a tab for 'Green Impact' which is the UN environmental accreditation scheme the University of Dundee has committed to. There is a lot of information here for both students and staff on how to reduce the environmental impacts of office and lab space. There is another tab called 'Energy & Environment' with the following subtabs: Energy; Environment; Green Travel; Policies; Recycling and Waste; What's On; and Storage/Re-Use. Although this website is informative and full of practical advice on how to live more environmentally friendly, there are no funding opportunities advertised and no recognition of leaders of planetary health at our institution. Additionally, the website is outdated. When you follow the What's On tab, the advertised events are from 2018.

Additionally, there is an internal webpage accessible to medical students titled 'Planetary Health and Sustainable Healthcare' with resources and teaching information. The webpage is invited and up to date but does not advertise funding opportunities so is not quite sufficient to award 3 points.

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

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

The University has weekly 'Grand Rounds' where various topics are presented. These are currently conducted via zoom available on youtube and anyone can access them after the event. Previous Planetary Health topics have included; Sustainability in Healthcare, NHS Scotland Climate Change. In addition there are events coming up surrounding the theme of global citizenship.

Additionally, the UoD hosted a climate change conference in 2019 titled 'Elements of a 'European', 'International', 'Global' Climate Consensus after Paris?'. The Dundee Climate Conference with integrated masterclass was held on campus over two days. It brought together climate change experts from academia and practice in law with experts from geoscience research and PhD students, LLM and MSc Sustainability students of the School of Social Sciences.

More info [here](#).

6. Has your institution or medical school joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education?	
2	Yes, the medical school has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education.
1	Yes, the institution has joined the Planetary Health Alliance and/or the Global Consortium on Climate and Health Education, but the medical school specifically has not.
0	No, the institution has not joined the Planetary Health Alliance or the Global Consortium on Climate and Health Education.
Neither the University of Dundee nor it's School of Medicine are listed to have joined the Planetary Health Alliance or the Global Consortium on Climate and Health Education.	

Section Total (13 out of 19)	13
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Are there additional research resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

‘Dr Rory Wilson is starting an Academic Foundation Programme in Dundee in August 2020. Dr Wilson looks to develop his research interests in Humanitarian Medicine, Planetary Health with a concentration on devising evidence based health care interventions in resource constrained settings.’ - <https://www.planetaryhealthlab.com/member/28?fbclid=IwAR1YKvT0E7hDa6K9tzwuiZKEM2uBwG5330T2Jy4v9DGfSPoXIT-4za9DXNY>

Community Outreach and Advocacy

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

1. Does your medical school partner with community organizations to promote planetary and environmental health?	
3	Yes, the medical school meaningfully partners with multiple community organizations to promote planetary and environmental health.
2	Yes, the medical school meaningfully partners with one community organization to promote planetary and environmental health.
1	The institution partners with community organizations, but the medical school is not part of that partnership.
0	No, there is no such meaningful community partnership.

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

The institution has public facing courses that include climate change eg ‘The climate emergency: local responses to global menace’ which was held in Feb 2021. In the medical school, Grand Rounds are held weekly and have covered sustainability topics under the titles ‘Sustainability in NHS Scotland’ (<https://www.youtube.com/watch?v=3FgXgAaot18>), ‘Climate Change and Health’ (<https://www.youtube.com/watch?v=aGhBhDF75E8>) and ‘Global Citizenship Team’. Grand Rounds are published on Youtube therefore freely accessible to the community although they are not specifically created to be community facing.

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3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?	
2	Yes, all students regularly receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are sometimes included in communication updates.
0	Students do not regularly receive communications about planetary health or sustainable healthcare.
Students do not regularly receive communications about planetary health or sustainable healthcare. The School of Medicine distributes a newsletter every month but there is no regular feature on planetary health.	

4. Do hospitals affiliated with your medical school have accessible educational materials for patients about environmental health exposures?	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated medical centers have accessible educational materials for patients.
Looking through the NHS Tayside Patient Leaflets I was unable to find any education material for patients about environmental exposures. https://www.nhstayside.scot.nhs.uk/GoingToHospital/PatientInformationLeaflets/A-Z/index.htm	

5. Do hospitals affiliated with your medical school have accessible educational materials for patients about climate change and health impacts?	
2	Yes, all affiliated hospitals have accessible educational materials for patients.
1	Some affiliated hospitals have accessible educational materials for patients.
0	No affiliated hospitals have accessible educational materials for patients.

There is no online educational material available or easily accessible about climate change and health impacts.

Section Total (2 out of 12)

2

Support for Student-Led Planetary Health Initiatives

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

1. Does your institution offer support for medical students interested in enacting a sustainability initiative?	
2	Yes, the institution offers grants available to medical students for students to enact sustainability initiatives.
1	The medical school encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, but there is no student funding available.
0	No, the institution does not offer opportunities or support for sustainability initiatives.
In the Ecologically Sustainable Clinical Practice SSC, students undertake a sustainability project using Sustainable Quality Improvement methodology.	

2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
3*	The institution offers an explicit paid fellowship for medical students to do research related to planetary health and/or sustainable healthcare.
2	The institution offers paid research opportunities for students and planetary health/sustainable healthcare projects would be considered eligible.
1	There are unfunded research opportunities for students to perform research related to planetary health/sustainable healthcare.
0	There are no opportunities for students to receive funding for planetary health/sustainable healthcare research.
As part of their optional intercalated BSc year, students have the opportunity to undertake self directed research which can be related to planetary health/sustainable healthcare.	

3. Does the medical school have a webpage where medical students can find specific information

related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.

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

There is an internal webpage accessible to medical students titled 'Planetary Health and Sustainable Healthcare' with resources and teaching information. The webpage is inviting and up to date but does not have specific information on potential mentors is not quite sufficient to award 3 points.

4. Does your medical school have funded, 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 funded student organization with faculty support at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it lacks faculty support and/or funding.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.

Students for Global Health is a society at the university that is committed to tackling health inequalities and aims to highlight the many issues which influence global health. This year the coordinated theme has been climate change.

5. Is there a student liaison representing sustainability interests who serves on a medical school or institutional decision-making council to advocate for sustainability best practices?

1	Yes, there is a student representative that serves on a medical school or institutional decision-making council.
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0	No, there is no such student representative.
<p>There is a medical student ‘Planetary Health Campus Ambassador’ who was appointed through the planetary health alliance. Their role is to promote planetary health within the medical school and university communities. The ambassador has also been invited to speak on promoting sustainability at ‘Grand Rounds’ where faculty across the medical school and wider hospital will be in attendance. Two medical students are also part of the NHS Tayside Sustainability Group.</p>	

6. In the past year, has the institution had one or more co-curricular planetary health programs or initiatives in the following categories? (1 point each)	
1	Projects where students are able to gain experience in organic agriculture and sustainable food systems, such as gardens, farms, community supported agriculture (CSA), fishery programs, or urban agriculture projects.
1	Panels, speaker series, or similar events related to planetary health that have students as an intended audience.
1	Events in which students learn directly from members of a local environmental justice community about the climate and environmental challenges they face, and how health professionals can partner with their community to address these exposures and impacts.
1	Cultural arts events, installations or performances related to planetary health that have students as an intended audience.
1	Local volunteer opportunities related to building community resilience to anthropogenic environmental impacts.
1	Wilderness or outdoors programs (e.g., that organize hiking, backpacking, kayaking, or other outings for students) that follow Leave No Trace principles.
<p>The UoD presents their ‘Saturday Series’ that includes climate change topics eg ‘The climate emergency: local responses to global menace’ which was held in Feb 2021. This was a panel event with 4 experts in the field. Additionally, Grand Rounds offers students the opportunity to learn directly from experts and local clinicians in the field of environmental health.</p>	

Section Total (7 out of 14)	7
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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 endeavor, the healthcare sector is well poised to lead the world to a more sustainable future. This will involve scrutinizing every aspect of how our systems operate, from where we source our energy, to how we build our infrastructure, to what companies we invest in. Our medical schools, clinics, and hospitals must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimizing environmental impact.*

1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is at least one designated staff member for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but no specific staff member in charge of medical school and/or hospital sustainability.
1	There are no salaried sustainability staff, but there is a sustainability task force or committee
0	There are no staff members or task force responsible for overseeing campus sustainability
<p>The ‘Energy and Environment Office’ serves the entire University of Dundee Campus. The office strives to provide a ‘unified service for the University community by helping students and staff become more energy and environmentally aware’. The office provides practical guides on topics such as how to cut your carbon emissions and travel more sustainably. They have also set up an online portal where University of Dundee staff can declare a surplus of equipment so as to redistribute to other individuals who are lacking in order to reduce waste. In this office there is an Environment and Sustainability Officer and an Energy Manager. On top of this, the School of Medicine has a dedicated lead for Sustainability Teaching.</p>	

2. Does your medical school and/or institution have a stated goal of carbon neutrality by 2050?	
4*	The medical school is already carbon neutral.
3	Yes, there is a stated carbon neutrality goal and the medical school has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal, but the medical school has not created a plan to reach that goal or the plan is inadequate.
1	There is a CO₂ emission reduction goal, but it is not one of carbon neutrality.

0	There is no stated goal for reduction of CO2 emissions.
The University of Dundee has a target to reduce its carbon emissions by 80% by 2050 but has not stated an aim for carbon neutrality.	

3. Do buildings/infrastructure used by the medical school for teaching utilize renewable energy?

3*	Yes medical school buildings are 100% powered by renewable energy
2	Medical school buildings source >80% of energy needs from off-site and/or on-site renewable energy.
1	Medical school buildings source >20% of energy needs from off-site and/or on-site renewable energy.
0	Medical school buildings source <20% of energy needs from off-site and/or on-site renewable energy.

This metric has been scored for Ninewells hospital as the medical school building is inside the hospital. Ninewells hospital has completed an 18month project in partnership with Vital Energi to improve carbon and energy performance. <https://www.vitalenergi.co.uk/>
A combined heat and power plant was installed in the hospital and now provides 95% of all power and heating for Ninewells, however according to the Head of Environmental Management at the hospital, this energy is not yet from renewable sources.
We believe Ninewells is committed to reducing its carbon footprint as is evidenced in this carbon and energy fund project:
https://www.nhstaysidecdn.scot.nhs.uk/NHSTaysideWeb/idcplg?IdcService=GET_SECURE_FILE&dDocName=PROD_234076&Rendition=web&RevisionSelectionMethod=LatestReleased&noSaveAs=1

Additionally, we have found the following information from the SSE website. (No dates were given and so we are unsure if all four transformers have been completed.)

'The transformation project at Ninewells Hospital will save NHS Tayside approximately 70,000 kWh per annum per transformer. Each transformer will provide carbon savings of 27,113kgs and energy cost savings of £7,000 a year. Once all four transformers are online, the project is forecast to provide energy savings over a 5-year period of 304,000kWh, approximately 1.79% of the total electrical energy consumption at T1. This, in turn, equates to a reduction in carbon of approximately 135,564kgs over the same 5-year period (total) and an energy cost saving of over £143,000.'
<https://www.ssecontracting.co.uk/insights/case-studies/ninewells-hospital/>

4. Are sustainable building practices utilized for new and old buildings on the medical school campus, with design and construction of new buildings and remodeling of old buildings conforming to a published rating system or sustainable building code/guideline?

3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the majority of old buildings have been retrofitted to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have not been retrofitted.
1	Sustainable building practices are inadequately or incompletely implemented for new buildings.
0	Sustainability is not considered in the construction of new buildings.
Despite contacting the Head of Environmental Management at ninewells, no answer was provided for this metric and we were unable to find any information online.	

5. Has the medical school implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?	
2	Yes, the medical school has implemented strategies to encourage and provide environmentally-friendly transportation options such as safe active transport, public transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school has implemented some strategies to provide environmentally-friendly transportation options, but the options are unsatisfactorily accessible or advertised.
0	The medical school has not implemented strategies to encourage and provide environmentally-friendly transportation options.
<p>There are no such advertised strategies for medical students either on the School of Medicine website or on our internal website. However, the medical school is within the hospital building and the hospital are looking at improving sustainable travel options including a designated cycling lane and safer bike lock ups.</p> <p>The University has set goals to make sure all staff and students are aware of active travel options around campus. The university also has conducted research into the type of travel students and staff use regularly. And finally, they have implemented a departmental e-bike initiative to encourage staff to cycle to work.</p>	

6. Does your medical school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?	
2	Yes, the medical school has both compost and recycling programs accessible to students and faculty.
1	The medical school has either recycling or compost programs accessible to students and faculty, but not both.

0	There is no compost or recycling program at the medical school.
<p>In the medical school there are 2 types of bins. One bin is for general waste and one is for recycling but there is not a designated compost bin. The bins are large (about up to hip height) and very well signposted. They are appropriately situated in areas that are popular for eating lunch and therefore where most waste is produced (eg library, foyer, cafe).</p>	

7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections?

3	Yes, the medical school has adequate sustainability requirements for food and beverages 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.
No published sustainability guidelines were identified when researching this question.	

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

3	Yes, the associated institutions have adequate sustainability requirements for supply procurement and are 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.

Ninewells hospital (as part of NHS Tayside) has adopted the Marrakesh approach to environmentally sustainable procurement in partnership with Zero Waste Scotland. This approach covers topics such as prioritisation, life cycle impacts, green public procurement and government buying standards. The institution has also subscribed to the Scottish Sustainable Procurement Action Plan to co-ordinate their sustainable procurement activities. In addition, a sustainable procurement e-learning module has been created.

The University is also committed to applying and promoting sustainable procurement practices. They have created a webpage specifically for sustainable procurement. The definition and benefits of

sustainable procurement are outlined here. Finally, there is also a checklist provided to encourage considerations on sustainable procurement. Here is an excerpt from the checklist:

- Can I repair the product?
- Is the product biodegradable?
- Does the product contain recycled material? Do we really need to buy a virgin product when the recycled version is of the same quality?
- Does the product have minimal packaging and/or for which there will be take-back by the manufacturer?
- Does the product have minimal content and use of toxic substances in production and final product?

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

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

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

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

The labs based at the medical school are part of the larger University of Dundee campus. The UoD has implemented the Green Impact accreditation scheme for students and staff. This scheme encourages staff or students to join a team and work toward bronze, silver or gold accreditation.
<https://www.dundee.ac.uk/estates/green-impact/>

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

4	The institution is entirely divested from fossil fuels and has made a commitment to reinvest divested funds into renewable energy companies or renewable energy campus initiatives.
3	No, the institution is entirely divested from fossil fuels.

2	The institution has partially divested from fossil-fuel companies.
1	The institution has not divested from fossil-fuel companies, but faculty and/or students are conducting organized advocacy for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been no efforts to change that.
<p>In November 2020, the University of Dundee committed to divestment from fossil fuel companies within the next 5 years. The decision was approved by the University’s Finance and Policy committee after the successful campaigning by the group ‘Divest Dundee’.</p> <p>Professor David Maguire, Interim Principal and Vice-Chancellor of the University, said, “The University Strategy states that we will build upon our strong track record of improving environmental sustainability to minimise the negative impact we have on the world and its resources. We have a duty to play our part in responding to the climate emergency, and there needs to be actions as well as aspirations. With that in mind we are divesting from fossil fuel companies. We have listened to the staff and student voice on this issue, and they have rightly pressed us to take clear and timely action. Divestment is a process that will take a relatively short amount of time and we are already progressing with that.” This quote and information about divestment was found here: https://www.dundee.ac.uk/stories/university-divest-fossil-fuel-companies</p>	

Section Total (12 out of 29)	12
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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%

Planetary Health Grades for the University of Dundee, School of Medicine

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

Section	Raw Score	Grade
Planetary Health Curriculum (30%)	33 / 58 = 57%	C+
Interdisciplinary Research (17.5%)	13 / 19 = 68%	B
Community Outreach and Advocacy (17.5%)	2 / 12 = 17%	F+
Support for Student-led Planetary Health Initiatives (17.5%)	7 / 14 = 50%	C
Campus Sustainability (17.5%)	12 / 29 = 41%	C-
Institutional Grade	48%	C