



Planetary Health Report Card:

Pharmacy

University of Montana



2023-24 Contributing Team:

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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”[1]. 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 single biggest health threat facing humanity”[2] many pharmacy schools’ institutional priorities do not reflect the urgency of this danger to human health. Fossil-fuelled electricity and gas and medical or pharmaceutical products used in healthcare account for around 8% of the total global greenhouse gas footprint of healthcare[3] with pharmaceutical waste also providing a dangerous contaminant to our water systems [4]. Metered dose inhalers contribute 500g CO₂eq per dose [5], whilst air pollution causes 7 million deaths per year worldwide and exacerbates chronic respiratory disease [6]. Pharmacy therefore has a direct and detrimental impact on planetary health and this contradiction in patient care must be addressed and actioned.

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 pharmacy training. It is imperative that we empower those who are educating pharmacy 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, and hold those who are not accountable. Because climate change and environmental threats disproportionately affect vulnerable populations [7] (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 providing recommendations and opportunities for improvement among pharmacy schools, we have created a Planetary Health Report Card that pharmacy students internationally can use to grade and compare their institutions on an annual basis. This pharmacy-student-driven initiative aims to compare pharmacy schools nationally and internationally on the basis of discrete metrics in five main category areas: 1) planetary health curriculum, 2) planetary health research, 3) university support for student planetary health initiatives, 4) community outreach centred on environmental health impacts, and 5) pharmacy school campus sustainability.

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the *Planetary Health Alliance* 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” [1]. 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 pharmacy 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.
- **Education for Sustainable Healthcare (ESH):** is defined as “the *process of equipping current and future health professionals with the knowledge, values, confidence and capacity to provide environmentally sustainable services through health professions education*. We define a *health professional as a person who has gained a professional qualification for work in the health system, whether in healthcare delivery, public health or a management or supporting role and education as ‘the system comprising structures, curricula, faculty and activities contributing to a learning process’* [8]. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge about planetary health is required to fully understand the necessity of sustainable healthcare. It is also part of the broader knowledge needed to fully protect and promote health.
- **Pharmacy School vs. Institution:** When “pharmacy school” is specified in the report card, this only refers to the curriculum and resources offered by the school of pharmacy and does not include offerings from other parts of the university (for example, 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 pharmacy students, no matter where in the institution the resource comes from or if it is specifically targeted for pharmacy students, can meet this metric.
- **Community organisations:** For most institutions, there are existing groups that are not directly affiliated with the university and exist as a product of what the community the institution exists in cares about or needs. These specific community organisations relevant to this report include those that are focused around some aspect of climate and health preservation. These community organisations can include but are not limited to local mutual aid initiatives, underserved-resource distribution groups, clean-up and nature conservation groups, community gardeners, and other environmental-related

organisations. If your institution does not have access to local volunteerships with community groups, please report any community organisations your institution or school has collaborated with.

Summary of Findings

Overall	B+
Curriculum	A-
<p>Overall, the UMT Skaggs School of Pharmacy covers a variety of sustainability topics at varying depths. Some of the greatest topics of coverage include forest fires and smoke impacts, severe weather, and carbon footprints of healthcare systems. There are many categories in which we scored one less point than the maximum, and this is typically due to a topic being covered only briefly in the core curriculum. Thus, an area of improvement for our curriculum category would involve exploring some topics at a more in-depth level in the core curriculum.</p>	
Planetary Health Research	A
<p>The score that has been achieved in this category is mainly due to the many opportunities outside of the core curriculum at our pharmacy school that cover planetary health-related topics. These opportunities are built into elective courses that students may choose to take. The only area for improvement by our institution in this category would surround the involvement of those in the community helping to shape what research occurs on campus.</p>	
Community Outreach and Advocacy	B
<p>From this section, our pharmacy school scored max points in 2 of 3 areas. No points were awarded regarding regular updates or communications that relate to sustainability or planetary health, as these topics are not mentioned in regular communications from the pharmacy school. Including sustainability topics in some regular communications would be a good place to start.</p>	
Support for Student-Led Initiatives	A-
<p>The greatest area for improvement in this section would surround access to specific research programs for students interested in healthcare-related sustainability and/or planetary health research. Fortunately, our institution does have many extra-curricular opportunities involving planetary health and sustainability that boost our overall score in this section.</p>	
Campus Sustainability	C-
<p>The two areas of greatest improvement lie in lab sustainability and fossil fuel divestment. We believe that starting with lab sustainability would be the most achievable area to start in and would provide a great impact on this section, as UMT is an R1 university, meaning that research</p>	

is a very important facet of what we do here at UM. Since there is so much research always happening on campus, making campus-wide lab sustainability requirements would be one possible way of improving our score and environmental impact in this area.

Planetary Health Curriculum

Section Overview: This section evaluates the integration of planetary health topics into the pharmacy school curriculum. Today's pharmacy students will be on the frontlines of tackling the health effects of climate and other environmental changes. Therefore, it is critical that pharmacy students understand planetary health issues and principles.

1. Does your pharmacy school curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.
<p><i>Score explanation: Within the curriculum at the University of Montana Skaggs School of Pharmacy (SSOP), extreme weather events and their impact on individuals' health are explored in depth. Multiple core curriculum classes and electives incorporate the issues that extreme weather has on health through multiple case studies, often as in-class research topics. For example, our school curriculum brings up access to medications during extreme cold, heat, smoke, and floods and how they can impact a patient's inability to access care or storage safety with medications. Another focus on extreme weather and its effects on individuals and the healthcare system that the University highlights is the increase in the spread of certain diseases with increased humidity and heat spreading across the country. These topics and more are discussed over multiple years, courses, and electives. This was awarded 3 points.</i></p>	

2. Does your pharmacy school curriculum address the environmental impact of medicines in terms of their pollution, ecological impact and contamination of water systems?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.

1	This topic is covered in elective coursework.
0	This topic is not covered.

Score explanation: The environmental impact of medications is briefly discussed in one of the first-year classes known as Pharmaceutics. This topic was covered more specifically in a class called Public Health, which is a third-year pharmacy school course. There are also electives that Professor Hayley Blackburn coordinates where this topic was also explored more deeply.

3. Does your pharmacy school curriculum address the health effects of pharmaceutical industry- and manufacturing-related environmental toxins?

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

Score explanation: At the University of Montana SSOP, these topics are covered in lectures and brought up in case studies in some elective classes. Although the electives offer more time for in-depth discussion of these topics, there have been multiple classes spanning the pharmaceutical curriculum that address manufacturing-related toxins briefly. For example, in P1 pharmaceutics, life-cycle analysis and environmental impacts of manufacturing are discussed at an introductory level lecture. In public health, one lecture focused on medication manufacturing in India and the impacts of these factories dumping waste into the nearby rivers, such as bacterial resistance.

4. Does your pharmacy school curriculum address the carbon footprint of healthcare systems?

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

Score explanation: The University of Montana SSOP addressed the carbon footprint of healthcare systems in depth throughout the core curriculum and furthermore in multiple electives. The carbon footprint of healthcare is discussed in a lecture format over multiple years and offers ways to decrease this impact. For example, the use of metered dose inhalers and their carbon footprint is an issue that has been brought up multiple times over the P1-P3 years. Other lectures on the carbon footprint of healthcare include the life cycle of a medication and the traveling that a single pill needs to take to reach its intended patient. In addition to core curriculum electives such as Climate and Health COIL and Human Health and Climate Change explore these topics to a greater degree. This was awarded 3 points.

5. Does your pharmacy school curriculum address the impact of climate change on the changing patterns of infectious diseases and increased antimicrobial resistance?

3	These topics are explored in depth by the core curriculum.
2	These topics are briefly covered in the core curriculum.
1	These topics are covered in elective coursework.
0	These topics are not covered.

Score explanation: The University of Montana SSOP curriculum addresses the impact of climate change on infectious diseases and increased antimicrobial resistance briefly in the core curriculum and thoroughly in offered electives. In the P3 Public Health course (part of our core curriculum), multiple lectures address a handful of infectious diseases of which infection patterns have changed due to temperature changes in the different geographical areas. The public health course also lectures about the impacts of pharmaceutical pollution and related antimicrobial resistance in India. This topic was also presented in the Human Health and Climate Change and Climate and Health COIL electives in greater detail with patient case examples.

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

3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.

0	This topic is not covered.
<p><i>Score explanation: At the University of Montana SSOP there are electives as well as embedded coursework that addresses the respiratory health effects that climate change and air pollution have. This is covered in multiple years of the curriculum from P1-P3 year, including pathophysiology, therapeutics, and public health. For example, in the elective Human Health and Climate Change the repercussions that pollution has on chronic health issues such as respiratory disease is discussed at length and brought up in multiple case studies. This elective also teaches counseling points and solutions for the safety of those with respiratory issues during wildfires and other pollutants. Embedded into the core curriculum, air pollution and the consequences that it has on respiratory function are almost always brought up when discussing the health of patients with asthma and COPD. These chronic respiratory diseases are discussed at large spanning over multiple courses and semesters.</i></p>	

7. Does your pharmacy school curriculum address the cardiovascular health effects of climate change, including increased heat?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.
1	This topic is covered in elective coursework.
0	This topic is not covered.
<p><i>Score explanation: At the University of Montana SSOP, the cardiovascular effects of climate change were covered well in Public Health, which is part of the core curriculum for third-year pharmacy students. Further details on these issues are discussed more at length in multiple electives offered.</i></p>	

8. Does your pharmacy school curriculum address the relationship between climate change and allergies?	
3	This topic is explored in depth by the core curriculum.
2	This topic is briefly covered in the core curriculum.

1	This topic is covered in elective coursework.
0	This topic is not covered.

Score explanation: Wildfire smoke and its effects on asthma patients have been covered in core classes such as Public Health and Therapeutics. With asthma being an allergic and reactive airway disease, general “allergen elimination” from a patient’s home and environment is discussed. However, there is not a very clear-cut or direct conversation in any of our classes between climate change as a whole and its impact on allergies.

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

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

Score explanation: In the main curriculum class ethics that third-year pharmacy students take, mental health impacts of climate change are discussed.

10. Does your pharmacy school curriculum address the unequal regional health impacts of climate change nationally and globally, including the impact of social inequality?

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

Score explanation: In both public health and the human health and climate change elective, unequal regional health impacts are topics of lectures and discussions. One aspect that we have focused on in these classes is the change in spread of certain diseases, such as malaria, rocky mountain spotted fever, and Lyme disease, due to increasing temperatures. The unfair impacts of climate change on Native American populations in the areas surrounding Missoula and in other parts of the United States are discussed as well. We also briefly speak about how

people of color are more frequently impacted by pollution and climate change in public health. We often mention wildfires and how they have gotten worse in our region and how that may be due to climate change. These topics are introduced in the second-year pharmacy practice class as well.

11. Does your pharmacy school curriculum address the relationship between climate change and social determinants of health (e.g., reduced nutritional value of food)?

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

Score explanation: This is covered in several courses throughout the third year of the pharmacy curriculum, including in public health and in pharmacy ethics courses. Social determinants of health and their interplay between how different groups are impacted by climate change were covered in public health. The ethical issues related to climate change and social determinants of health is covered in a lecture and discussion section (3 hours total) in the spring of P3 year.

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

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

Score explanation: The health benefits of many different diets are covered in multiple classes throughout didactic coursework between the P1-P3 years. The specific climate benefits of a plant-based diet are covered briefly in elective coursework (human health and climate change and the linked COIL class), especially when calculating a person's environmental impact.

13. Does your pharmacy school curriculum cover these components of sustainable clinical practice? (1 point each)

1	Waste production within the healthcare system and strategies for reducing waste in clinical activities such as single use plastic and packaging.
1	Patient counseling on safe disposal of medications. For example, what can be disposed of and how to locate recycling schemes, in addition to certain drugs or drug classes that are most important to dispose of properly (e.g. hormonal contraceptives, drugs that are excreted unchanged/active metabolites).
1	The impact of extreme heat, on patients on medications which can interfere with thermoregulation
1	The impact of anaesthetic gases on the healthcare carbon footprint.
1	The environmental impact of pharmaceuticals and over-prescribing as a cause of climate health harm. Alternatively, teaching on de-prescribing where clinically appropriate and its environmental and health co-benefits would fulfill this metric.
1	The health and environmental co-benefits of non-pharmaceutical management of conditions where appropriate such as exercise or yoga classes for type 2 diabetes; social group activities such as gardening for mental health conditions; active transport such as bicycle schemes for obesity. This is commonly known as social prescribing in the UK.
1	The impact and benefits of benign-by-design pharmaceuticals through exploring medicinal chemistry concepts and/or discussing implications of excretion of active metabolites/unchanged drug products on ecological systems

Please highlight all metrics that apply to your pharmacy school and insert explanations below.

Score explanation: (6/7)

#1 and 5: Second-year pharmacy students cover life cycle analyses of drugs, which includes the making of the medication, packaging, shipping, etc. These life cycles of medications are also covered briefly by P3 students in public health, and any student who takes human health and climate change +/- the associated COIL course covers the lifecycle of a medication as well.

#2: Safe disposal of medications is briefly covered in many places through the P1-3 curriculum, but a lecture in P2 pharmacy practice course focuses on environmental implications of improper disposal and related topics.

#3: The impact of extreme heat and thermoregulation abilities of patients is covered in public health and in elective courses.

#4: In pharmaceuticals, pharmacy 421, and public health, the impacts of anesthetic gasses on emissions are covered.

#4: Over- and de-prescribing impacts are covered in ethics and elective classes.

#5: Non-pharmaceutical management of many chronic conditions is discussed in-depth in therapeutics classes throughout P1-P3 years.

14. Does your pharmacy school curriculum discuss the environmental implications of various dosage forms, medication delivery devices, and/or excipients?

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

Score explanation: This topic is covered across the curriculum in P1, P2, and P3 year. P1 students learn about the environmental impacts of drug dosage forms/delivery devices in one focused lecture in Pharmaceuticals. P2s get more coverage of this topic in their Pharmacy Practice course in spring semester in the context of drug waste. Environmental impact of inhalers are most commonly discussed devices in relation to the environmental impacts of medications and devices or dosage forms. This was discussed in public health, human health and climate change, and briefly in therapeutics III.

15. In training for patient communication, does your pharmacy school's curriculum introduce strategies for having conversations with patients about the health effects of climate change?

3	Yes, there are clear and detailed strategies introduced for having conversations with patients about climate change in the core curriculum.
2	Yes, having conversations with patients about climate change is briefly mentioned in the core curriculum.
1	Yes, there are some examples of having conversations with patients about climate change in elective coursework.
0	No, there are not strategies or examples for having conversations with patients about climate change

Score explanation: At the University of Montana SSOP, wildfires are a huge detriment to the general population in the surrounding area, so patient counseling regarding wildfire smoke is a topic discussed at length in Public Health. How to manage conversations with patients on staying safe during high-smoke seasons is discussed, but we also touched on specific emergency situations, such as flooding.

16. Does your pharmacy school curriculum guide students to consider the environmental impact of medications as a factor in addition to safety, efficacy, cost, and pill burden when comparing equivalent therapies?

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

Score explanation: Environmental impact being a part of the decision to use a specific medication is briefly discussed in public health, pharmacy practice and human health and climate change. There were different resources provided to students to aid in making medication recommendations to physicians and patients.

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

4	Yes, the school is currently in the process of making major improvements to ESH/planetary health education.
2	Yes, the 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.

Score explanation: The University of Montana SSOP is, in addition to ongoing continuous quality improvement, expanding to include more coverage of planetary health topics, and to

offer experiential training and post-graduate opportunities in the realm of sustainable healthcare and planetary health.

18. Does your pharmacy school have a member of faculty to incorporate planetary health and sustainable healthcare as a theme throughout the curriculum ?

4	Yes, there is/are a member(s) of faculty whose role is directly responsible for the incorporation of planetary health and sustainable healthcare as a theme throughout the curriculum
2	Yes, there is/are member(s) of faculty who are incorporating planetary health and sustainable healthcare as a theme throughout the curriculum as well as doing their principle role
0	There are no members of faculty who are incorporating planetary health and sustainable healthcare as a theme throughout the curriculum

Score explanation: The University of Montana SSOP has Hayley Blackburn, Associate Professor of Pharmacy Practice, whose role is directly responsible for the incorporation of planetary health and sustainable healthcare as a theme throughout the curriculum.

19. Does your pharmacy school curriculum offer clinical practice experiences (for example, IPPE/APPE rotations in the U.S. or placement opportunities in the UK) that allow for the exploration of planetary health topics?

3	There are multiple clinical practice experiences/placements that allow for direct exposure to planetary health topics.
2	There is one available clinical practice experience/placement that allows for direct exposure to planetary health topics.
1	There are available clinical practice experiences/placements that allow for indirect exposure to planetary health topics.
0	No, there are no such clinical practice experiences/placements available through the pharmacy school.

Score explanation: At the University of Montana SSOP there is an APPE elective called Global & Planetary Health that is precepted by Hayley Blackburn. Dr. Blackburn's Population Health APPE elective also includes opportunities to work on research and program implementation related to climate resilience and environmental sustainability in healthcare.

20. Does your pharmacy school curriculum acknowledge a disparity in the effects of climate change? Specifically, does your curriculum address groups more vulnerable to environmental impacts, such as BIPOC, immigrant groups, low income populations, children, elderly, persons with disabilities, persons with pre-existing or chronic medical conditions?

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

Score explanation: Health disparities among differing groups were discussed simultaneously with social determinants of health in public health and in ethics of climate change lecture (total approximately 2.5 hours on this topic). The relationship between climate change, pollution, and environmental disasters were some of the different focal points when discussing these groups.

Section Total (53 out of 66)

80.30

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

Planetary Health Research

Section Overview: *This section evaluates the quality and quantity of planetary health research at the school and with the broader institution. Interactions between health and the environment are complex and multifactorial. While climate change has been extensively studied from an environmental science perspective, planetary health is an emerging field. Pharmacy schools should support research in areas such as the health effects of climate change, adaptive measures and pharmacy’s environmental impact.*

1. Are there researchers engaged in planetary health research and healthcare sustainability research at your pharmacy school?	
3	Yes, there are faculty members at the School of Pharmacy who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the School of Pharmacy 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 pharmacy school.
0	No, there are no planetary health and/or healthcare sustainability researchers at the institution or pharmacy school at this time.
<p><i>Score explanation: Dr. Hayley Blackburn has multiple research projects related to planetary health and healthcare sustainability, including research on health impacts of exposure to wildfire smoke and extreme heat and medications’ effects on outcomes of these exposure events; evaluation of inhaler utilization patterns; and implementation science research related to pharmacists’ roles in climate adaptation. Dr. Blackburn’s work intersects with others’ areas of work within the University of Montana College of Health, where interdisciplinary collaborations for research in environmental health, population health, and planetary health span multiple researchers and departments connected to the School of Pharmacy.</i></p>	

2. Has your institution recently provided extra curricular talks or learning opportunities on topics related to planetary health?	
4	Yes, the pharmacy school has hosted at least one opportunity for extra learning on topics related to planetary health in the past year.

3	Yes, the institution has hosted at least one opportunity for extra learning on topics related to planetary health in the past year.
2	Yes, the institution has provided at least one opportunity for extra learning on topics related to planetary health in the past three years.
1	The institution has not hosted anything directly, but they have provided financial support for a local planetary health event.
0	No, the institution has not hosted anything on topics related to planetary health in the past three years.

Score explanation: The University of Montana SSOP offers Climate and Health COIL, Human Health and Climate Change electives, and independent studies where the primary focus is planetary health.

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 pharmacy 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.

Score explanation: There have been research agendas that worked alongside Native American tribes in the past. While working with Climate Smart Missoula, there has been multiple needs assessment research toward populations disproportionately impacted. There is a way for communities to provide advice and for the research to become community-informed.

Section Total (9 out of 10)	90.00%
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Community Outreach and Advocacy

Section Overview: *This section evaluates pharmacy 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 pharmacy school partner with community organisations to promote planetary and environmental health?	
3	Yes, the pharmacy school partners with multiple community organisations to promote planetary and environmental health to share opportunities for student involvement.
2	Yes, the pharmacy school partners with one community organisation to promote planetary and environmental health to share opportunities for student involvement.
1	The institution partners with community organisations, but the pharmacy school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p><i>Score explanation: University of Montana SSOP partners with community organizations such as Climate Smart Missoula, Missoula Public Health, Family Medical Residence, CSKT Climate Act, and others to promote planetary and environmental health.</i></p>	

2. Does your pharmacy school have coverage of issues related to planetary health and/or sustainable healthcare in their 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.

Score explanation: Issues on planetary health and sustainability healthcare are not mentioned in regular pharmacy school communications to all students.

3. Is your pharmacy school a member of a national or international planetary health or ESH organization?

1 Yes, the school is a member of a national or international planetary health or ESH organization

0 No, the school is not a member of such an organization

Score explanation: The pharmacy school is a member of the Global Consortium and Climate and Health Organization.

Section Total (4 out of 6)

66.67%

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 opportunities for pharmacy 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: Within the University of Montana SSOP, an APPE rotation and independent studies are offered for pharmacy students to participate in planetary health and sustainability research; however, students do have to seek out that information or sign up for courses upon their own initiative.</i></p>	

2. Does the pharmacy school provide access for students to specific information related to planetary health and/or sustainable healthcare activities and mentors within the school? For example, a web page detailing projects achieved, current initiatives underway at the pharmacy school and/or contact information for potential mentors.	
2	The pharmacy school provides 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	The pharmacy school provides some information on projects and mentors within planetary health and sustainable healthcare within the school, but it lacks key information.
0	There is no pharmacy school specific access to planetary health and/or sustainable healthcare projects or mentors.
<i>Score explanation: The SSOP does not have a website specifically about the up-to-date information on planetary health, however, it does have a mentor that can provide information about projects underway and other relevant information.</i>	

3. Does your University have registered student groups dedicated to 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 University dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organisation at my University 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.
<i>Score explanation: The Climate Response Club is a student group focused on climate change, planetary health, and connecting students with opportunities to create positive change at UM.</i>	

4. In the past year, has the institution had one or more extra-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 organise hiking, backpacking, kayaking, or other outings for students)

Score explanation:

1. *There are multiple opportunities for students to engage in experience in organic agriculture and sustainable food systems, a few are the PEAS farm, UM FLAT, and UM Campus Dining garden – the Iron Griz offers multiple student internships every year*
2. *An elective such as the Friday morning medical conference is a platform that has been used to teach attendees about planetary health.*
3. *The University partners with Climate Smart Missoula and Families for a Livable Climate which offers education, involvement in local projects, and giveaways that support planetary health. Although most of these seminars are directed to the general public and focus is not on healthcare professionals, this does not mean that they are not beneficial for members of healthcare.*
4. *An example of a cultural arts event that was directly related to planetary health was a film screening of 2040—a movie that was promoted to students and included a discussion over the topics within the film.*
5. *There are many local volunteer opportunities. To name a few: Missoula’s branch of 350.org, the Sierra Club, Climate Smart Missoula, Families for a Livable Climate, Climate Response Club, and more.*
6. *The University offers courses such as Wilderness & Civilization Field Studies, Conservation Ecology, Wilderness First Aid and more that can lead to a minor in wilderness studies.*

Section Total (10 out of 12)

83.33%

Campus Sustainability

Section Overview: *This section evaluates the support and engagement in sustainability initiatives by the pharmacy 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 pharmacy schools and institutions must set the standard for sustainable practices, and show other sectors what is possible when it comes to minimising environmental impact.*

1. Does your University 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 pharmacy 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 pharmacy.
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 University of Montana has an Office of Sustainability with one or more full-time employees however there is no specific staff member in charge of pharmacy.</i></p>	

2. How ambitious is your pharmacy school/institution's plan to reduce its own carbon footprint?	
4	The institution has a stated goal of carbon neutrality by 2030 or earlier and the pharmacy school has a well-defined and adequate plan in place to achieve this goal.
3	Yes, there is a stated carbon neutrality goal by at least 2040 and the school has a well-defined and adequate plan in place to achieve this goal.
2	Yes, there is a stated carbon neutrality goal by at least 2040, but the pharmacy 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.

Score explanation: In 2010, the University of Montana completed a Climate Action Plan, establishing our goal of achieving carbon neutrality by 2020 and an interim goal of reducing carbon emissions 10% below 2007 by 2015 (successfully met). However the goal of carbon neutrality has not been met; however, the office of sustainability continues its advocacy for carbon neutrality.

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

2	Yes, the pharmacy school has both compost and recycling programs accessible to students and faculty.
1	The pharmacy 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 pharmacy school.

Score explanation: At the University of Montana our Food Zoo offers composting for students and faculty alike. In addition to compost, there are locations on campus for glass/aluminum/paper/plastic recycling which are easily accessible to the students and public.

4. Does your pharmacy school provide paperless teaching? e.g. lecture materials, exam papers, hand-outs

3	The whole course is delivered using online modalities of assignment, lecture, and examination delivery.
2	The majority of the course is delivered using online modalities with exception to few assignments where paper is still encouraged.
1	Some of the course is delivered using online modalities, but the majority of assignments and examinations are on paper.

0	None of the coursework is delivered using online modalities and paper printing is widespread.
<i>Score explanation: The level of paperless teaching at SSOP does change depending on the professor. Most exams are on paper but handouts and lecture materials are mostly online.</i>	

5. Does your pharmacy school have programs and initiatives to assist with making lab spaces more environmentally sustainable?	
2	Yes, the school has programs and initiatives to assist with making lab spaces more environmentally sustainable.

6. Does your institution have a strategy or timeline for divestment from fossil fuels?	
4	The institution has fully divested from fossil fuels
3	Yes, the institution has solid divestment plans and a set timeline in which to divest by
2	The institution has committed to divestment but does not have a set strategy or timeline
1	The institution has mentioned divestment but doesn't have a strategy or timeline
0	No, there are no plans nor mention of divestment from fossil fuels
<i>Score explanation: Within the University of Montana, there have been efforts and propositions made by the sustainability office, however, no action or plan has been confirmed at this time.</i>	

Section Total (8 out of 18)	44.44%
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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 Montana Skaggs School of Pharmacy

The following table presents the individual section grades and overall institutional grade for the UMT Skaggs School of Pharmacy on this pharmacy-school-specific Planetary Health Report Card.

Section	Raw Score	Letter Grade
Planetary Health Curriculum (59%)	$(53 / 66) \times 100 = 80.30\%$	A-
Planetary Health Research (9%)	$(9 / 10) \times 100 = 90.00\%$	A
Community Outreach and Advocacy (5%)	$(4 / 6) \times 100 = 66.67\%$	B
Support for Student-led Planetary Health Initiatives (11%)	$(10 / 12) \times 100 = 83.33\%$	A-
Campus Sustainability (16%)	$(8 / 18) \times 100 = 44.44\%$	C-
Institutional Grade	$(80 \times 0.59) + (90 \times 0.09) + (67 \times 0.05) + (83 \times 0.11) + (44 \times 0.16) = \mathbf{74.82\%}$	B+

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