



Planetary Health Report Card

(Pharmacy):

*University of Colorado Anschutz
Skaggs School of Pharmacy and
Pharmaceutical Sciences*



Skaggs School of Pharmacy
and Pharmaceutical Sciences

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

2022-23 Contributing Team:

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Summary of Findings

Overall	C
<u>Curriculum</u>	C
<p>In the 2022-2023 academic year, various updates were made to the PharmD core curriculum, but only a handful of courses currently cover health in the context of climate change and social disparities.</p> <p>We recommend; continue and expand the Human Health and Climate Change elective. Elaborate upon the link between climate and human health in the core curriculum, acknowledging the direct and cyclical relationship between the two. Many courses already discuss non-pharmacological recommendations in conjunction with pharmacological therapy, but more conversation could take place on unintended impacts of packaging and dosage forms, tailoring medication therapy and more.</p>	
<u>Planetary Health Research</u>	B-
<p>Planetary health is not yet a primary research focus at the School of Pharmacy. There are currently no processes identified where community members can make input on the pharmacy school’s research agenda, but openings to implement such a process exist.</p> <p>We recommend; continue supporting faculty and speakers who engage in planetary health. Groups like the Center for Drug Discovery and CU Technology Innovation Discovery Entrepreneurship could further amplify these topics. We encourage partnerships with the School of Medicine, the CU Consortium for Climate Change and Health, and the Colorado School of Public Health, as well as the Office of Diversity, Equity, Inclusion and Community Engagement.</p>	
<u>Community Outreach and Advocacy</u>	D
<p>The School of Pharmacy partners with local organizations but these efforts do not yet encompass planetary health.</p> <p>We recommend; implement environmental health into our outreach and advocacy, as well as service learning projects by teaching local youth about accessible climate topics like air quality. Explore how the school can become a member of national or international planetary health organizations.</p>	
<u>Support for Student-Led Initiatives</u>	C
<p>There are many sustainability-related student organizations on campus, an annual sustainability challenge and a Diploma in Climate Medicine open to all healthcare professionals. There are limited opportunities for pharmacy research but these require student initiative.</p> <p>We recommend; consider the possibility of expanding sustainable healthcare fellowship or research programs for pharmacy students. Create a resource to collect information related to planetary health activities, organizations and mentors.</p>	
<u>Campus Sustainability</u>	C
<p>CU Anschutz has a campus wide Sustainability Manager. There is a goal to reduce greenhouse gas emissions, but it is not one of carbon neutrality. The campus is working on offering composting in addition to conventional recycling. All course materials, lectures and exams in the PharmD program are offered electronically.</p> <p>We recommend; formally establishing an Office of Sustainability, expanding incentivized parking for fuel efficient vehicles, shuttle routes to local apartments to reduce vehicles on the road, solar panels and more to reduce carbon footprint. Highlight and emphasize accomplishments in campus sustainability, raising awareness on the benefits and savings produced by the 5 LEED Gold rated facilities on campus.</p>	

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.

Other Considerations

The Skaggs School of Pharmacy and Pharmaceutical Sciences consists of a PharmD program (offered simultaneously via both in-person and remote instruction) as well as Masters, PhD and various online [programs](#). The School of Pharmacy is located in the University of Colorado Anschutz Medical Campus in Aurora, Colorado, and is part of a network of campuses that make up the University of Colorado [system](#).

This edition of the Pharmacy Planetary Health Report Card, written by PharmD students enrolled in the first iteration of the elective course Human Health & Climate Change, was made possible by instructors Dr. Tina Brock (University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences) and Dr. Hayley Blackburn (University of Montana Skaggs School of Pharmacy).

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: As part of the core PharmD curriculum, the Public Health and Outcomes course covers extreme weather disasters and how pharmacists as healthcare providers should be prepared for them. In 2023, the pharmacy school began offering the independent-study electives Human Health & Climate Change (Seminar and Virtual Exchange), which covers climate impacts on individual health and healthcare systems in more depth.</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 elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss environmental healthcare topics, including the impact of pharmaceuticals on the environment.

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: The elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss environmental healthcare topics.

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 elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss environmental healthcare topics, including the carbon footprint of healthcare systems.

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: As part of the core PharmD curriculum, the Infectious Disease courses (Pharmacotherapy 4 and 6; Infectious Disease Elective) very briefly mention the environmental impacts on antimicrobial resistance, implying that they can be related. The elective courses, Human Health and Climate Change (Seminar and Virtual Exchange) examine the environmental impact on increased antimicrobial resistance as well.

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.

Score explanation: As part of the core curriculum, courses such as Pharmacotherapy 1 briefly cover environmental stimuli and irritants from pollution as risk factors in the Pulmonary Pathology unit, and courses in the Interprofessional Education series briefly cover cases where occupational heat exposure and air pollution are contributing factors to patient care.

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.

Score explanation: The elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss environmental healthcare topics

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: As part of the core curriculum, courses such as Pharmacotherapy I briefly cover environmental stimuli like irritants from pollution and allergens can be risk factors in the Pulmonary Pathology unit, and the Pharmacotherapy Self-Care course discusses exposure to environmental allergens and the development of hypersensitivities to an extent. The elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss these environmental healthcare topics as well.

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: The elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss environmental healthcare topics including the impact of climate change on mental health

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: The elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss environmental healthcare topics, with notable emphasis on the unequal regional health impacts of climate change.

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: The elective courses Human Health & Climate Change (Seminar and Virtual Exchange) discuss environmental healthcare topics, with notable emphasis on the connection between climate change and social determinants of health.

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: Courses in the core curriculum, such as Pharmacotherapy Self-Care, have very briefly covered the benefits of a plant-based diet low in red meat in human health. The elective course Human Health & Climate Change discusses environmental healthcare topics.

**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 anesthetic gasses 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

Score explanation: As part of the core curriculum, courses like Pharmacotherapy 1 briefly discussed patient counseling on safe handling and disposal for medication such as scopolamine patches. Non-pharmacological therapies that benefit health and environment, such as a low-red meat diet, outdoor activity or pulmonary rehabilitation, are often discussed in core curriculum in conjunction with pharmaceutical treatment options.

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: The elective courses, Human Health & Climate Change (Seminar and Virtual Exchange) with Dr Tina Brock and Dr Hayley Blackburn, talks about some medications and their environmental impacts based on dosage form. The core course Pharmacotherapy 1 however presents an opportunity to discuss environmental impacts of inhaler devices in the Pulmonary Pathology unit. This could also be included in the Pharmaceutics course and lab.

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: The elective courses, Human Health and Climate Change (Seminar and Virtual Exchange) with Dr Tina Brock and Dr Hayley Blackburn, talks about some ways that students and professionals can talk to their patients about the effects of climate change on health and what the patient

can do to protect themselves. They also show how to access free resources to help educate patients. The core course Patient-Centered Communication may present an excellent opportunity to discuss climate change with patients.

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: The elective courses, Human Health and Climate Change (Seminar and Virtual Exchange), talks about some medications and their environmental impact.

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: Dr Tina Brock and Dr Hayley Blackburn have introduced an elective course this spring that covers Climate and Health topics. This class may expand and gain momentum since this was the first year it was implemented.

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: As Associate Dean for Education at the School of Pharmacy, Dr. [Tina Brock](#) is directly responsible for implementing sustainable education as evidenced by the introduction of the Human Health and Climate Change (Seminar and Virtual Exchange) elective courses. Students could also present this need to the School's Curriculum Committee to increase awareness of opportunities.

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: The PharmD [Experiential Program](#) consists of [over 1,300](#) rotation opportunities throughout the state of Colorado, with a commitment to serving rural environments as part of the Colorado Commitment. There are additional opportunities for rotations to be completed internationally or in other unique settings with indirect exposure to planetary health, but this typically must be arranged by the student.

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: Core courses such as Pharmacotherapy I briefly discuss environmental stimuli like irritants from pollution as risk factors in the Pulmonary Pathology unit, and courses in the Interprofessional Education series briefly discuss cases with patient-specific factors like socioeconomic background, occupational heat exposure and more. The Pharmacy Practice and Drug Information course briefly explores drug formularies offered by different insurance plans and their effect on access to health, but such disparities are not discussed in the context of climate change.

Section Total (31 out of 66)

47%

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: While there are many researchers on the medical campus investigating healthcare and sustainability topics, few are affiliated with the School of Pharmacy specifically. Dr. Sunny Linnebur has published and continues to work on research on the pharmacist’s role in medication disposal, and Dr. Tina Brock has published climate research topics as well. Dr. Julia Rawlings, through her role in the Rx Review program for the state of Colorado, has worked in medication reviews which evaluate opportunities and recommendations for de-prescribing of various drugs. Dr. Bainbridge’s published work entitled “Surface Detection of THC Attributable to Vaporizer Use in the Indoor Environment” has addressed the impact of cannabis vapor deposits in the environment as a tertiary exposure source as well.</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: This spring, the School of Pharmacy Dean's Leadership Convocation hosted "Climate Change & Pharmacy: The Role of the Pharmacist in Sustainable & Resilient Systems" presented by Dr. Hayley Blackburn. The Dean's Leadership Convocation last semester was relating to the environment as well, exploring topics of [population health and equity](#) on a global scale.

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: While there are no pharmacy specific initiatives yet for community members to make input on research, there are university-wide efforts in place. The Anschutz Campus [Office of Diversity, Equity, Inclusion and Community Engagement](#) collaborates with their Resident Leadership Council (RLC), the City of Aurora and other community groups to address community priorities and social determinants of health. One [ongoing initiative with the RLC](#) invites community members to express concerns, aspirations, and changes they would like to see in the community and to explore solutions to their issues. This kind of initiative, in conjunction with the newly built Research Pharmacy on campus, could potentially be an excellent opportunity for community input.

The University of Colorado's [Office for Educational Outreach and Pathway Initiatives](#) provides enrichment opportunities for young students from diverse backgrounds in the Colorado area. CU Denver's [Colorado-Wyoming Alliance for Minority Participation](#) offers housing, transportation support and research opportunities specifically for historically underrepresented students, although it is unclear how much input participants have on deciding their research agenda.

Section Total (6 out of 10)

60%

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 organizations to promote planetary and environmental health?	
3	Yes, the pharmacy school partners with multiple community organizations to promote planetary and environmental health to share opportunities for student involvement.
2	Yes, the pharmacy school partners with one community organization to promote planetary and environmental health to share opportunities for student involvement.
1	The institution partners with community organizations, but the pharmacy school is not part of that partnership.
0	No, there is no such meaningful community partnership.
<p><i>Score explanation: The Anschutz Medical Campus has previously partnered with organizations such as the Western Stock Show to promote and provide healthcare to members of rural colorado communities. The University has made efforts to connect with community members through the CU Anschutz Community Advisory Board and Resident Leadership Council as well. The School of Pharmacy participates in local vaccine clinics and elementary school enrichment programs, but connections to planetary and environmental health are not always made clear.</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: Students receive regular communication updates via various school newsletters, such as "CU Anschutz Today" from CU Anschutz. These occasionally highlight sustainable healthcare news topics like plant-based diets. CU Anschutz Student Affairs also maintains a "Be Well Wednesday" newsletter, which includes topics like "Improving your Environmental Health" under their "Ways to Thrive" section.

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 School of Pharmacy is not a member of a national or international planetary health organization yet. The School is an academic institutional member of the International Pharmaceutical Federation (FIP) which has adopted some [climate related policies](#) and submitted [support letters](#) to the COP climate conferences. The Dean of the CU Skaggs School of Pharmacy and Pharmaceutical Sciences is an officer of FIP and is a signatory to these letters.

Section Total (2 out of 6)

33%

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:</i> There is a Diploma in Climate Medicine that CU Anschutz offers to all healthcare professionals and a fellowship in this topic is currently open only to physicians. The PharmD Research Honors program allows interested students to pursue a longitudinal research project with a mentor and topic of their choice. The School of Pharmacy also has a Toxicology PhD program which may offer research opportunities in environmental healthcare for interested and eligible students.</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.
<p><i>Score explanation: While there is no pharmacy school-specific access to projects or mentors, there is an annual campus wide sustainability challenge open to all students as well as a list of environmental initiatives conducted by Facilities Management at the Anschutz Medical Campus. The School of Pharmacy's PharmD Honors Research program may provide general guidance on finding a research mentor for interested students.</i></p>	

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 organization with faculty support at my University dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my University dedicated to planetary health or sustainability in healthcare but it lacks faculty support.
0	No, there is not a student organization at my institution dedicated to planetary health or sustainability in healthcare.
<p><i>Score explanation: There are many student organizations at the School of Pharmacy dedicated to planetary health and sustainability in healthcare (such as the Society of Herbal and Integrative Medicine Pharmacists, the Student National Pharmaceutical Association) as well as campus wide student organizations (such as CHASE, Street Medicine).</i></p>	

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 organize hiking, backpacking, kayaking, or other outings for students)

Score explanation: The Dean's Leadership Convocation is a speaker series with students as the intended audience. The most recent fall and spring presentations were on sustainable health related topics. The [Anschutz Health and Wellness Center](#) offers outdoor fitness classes. CU Anschutz students may also organize outings on the campus page on [Meetup](#). The [Colorado Resiliency Arts Lab \(CORAL\)](#) hosts speakers and events connecting healthcare professionals and students to the cultural arts.

Section Total (6 out of 12)

50%

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 campus does not yet have a formal “sustainability office” but there is a full-time Sustainability Manager dedicated to institutional sustainability within Facilities Management for the CU Anschutz campus. There is no specific staff member in charge of sustainability at the pharmacy school.</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.
<p><i>Score explanation: The CU Anschutz campus has established goals to work towards 15% reduction from a 2019 baseline in greenhouse gas emissions, as per the 2022 Sustainability Report.</i></p>	

<p>3. Does your pharmacy school have an organics recycling program (compost) and a conventional recycling program (aluminum/paper/plastic/glass)?</p>	
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.
<p><i>Score explanation: The Anschutz Medical Campus has some programs in place such as a stormwater pollution prevention plan, but the School of Pharmacy has yet to expand beyond recycling of common waste. The CU Denver campus has begun implementing composting however, and the University is working on expanding composting on the Anschutz campus as well, following the 2022 President's Sustainable Solutions Challenge.</i></p>	

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.

Score explanation: The School of Pharmacy's PharmD program is offered remotely and in-person, and all resources (exams, assignments, lectures) are provided digitally. Course documents are hosted on Canvas (a digital learning management system), lectures are broadcasted through Zoom and recorded on Panopto, and examinations are proctored by Proctorio. Students are required to own a computer that meets the school's [technical requirements](#), but software [programs are available to students](#) for free.

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.
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 school to make lab spaces more sustainable.

Score explanation: Lab spaces on campus have [ongoing efforts](#) to make lab spaces more sustainable by upgrading lighting, HVAC and autoclave equipment to reduce energy and water consumption as well as waste. The Anschutz Medical Campus has educational awareness campaigns such as the [Fume Hood Sash Lowering Awareness Campaign](#) to encourage energy saving in lab spaces.

The [CU Research Pharmacy](#), opened in April 2022, is located in the newly constructed Anschutz Health Sciences Building, which was the [first LEED version 4.0 Gold Certified facility](#) on campus.

The campus as a whole utilizes a [Building Automation System](#) to computerize heating, ventilation and air conditioning across campus buildings, and the [Unoccupied Space Temperature Set-Back Program](#) saves energy in campus buildings by relaxing temperature control of unoccupied buildings during breaks and holidays.

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

Score explanation: CU Anschutz has over \$270 million invested at this time in fossil fuels and there are no plans nor mention of divestment according to the board of directors as of [Dec 12, 2022](#).

Section Total (9 out of 18)	50%
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*The CU Anschutz [2022 Sustainability Report](#) provides some additional campus information on alternative **transportation and electric vehicle charging** on campus, as well as **LEED** certified buildings.*

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 University of Colorado Anschutz School of Pharmacy

The following table presents the individual section grades and overall institutional grade for the University of Colorado Anschutz on this pharmacy-school-specific Planetary Health Report Card.

Section	Raw Score	Letter Grade
Planetary Health Curriculum (59%)	$(31/66) \times 100 = 47\%$	C
Interdisciplinary Research (9%)	$(6/10) \times 100 = 60\%$	B-
Community Outreach and Advocacy (5%)	$(2/6) \times 100 = 33\%$	D
Support for Student-led Planetary Health Initiatives (11%)	$(6/12) \times 100 = 50\%$	C
Campus Sustainability (16%)	$(9/18) \times 100 = 50\%$	C
Institutional Grade	$(A \times 0.59 + B \times 0.09 + C \times 0.05 + D \times 0.11 + E \times 0.16) = 48\%$	C

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