Planetary Health Report Card (Medicine):

Emory University School of Medicine

2023-2024 Contributing Team:
- Students: Annie Emanuels, Olivia Cote, Caroline Olson, Ian Kusher, Gilda Rastegar, Jonathon Monroe, Irene Liu, Riya Goel*
- Faculty and Staff Mentors: Rebecca Philipsborn and Ciannat Howett
- *Primary Contact: Riya Goel, riya.goel@emory.edu

Summary of Findings

Overall	A

Curriculum	A+

- Emory University School of Medicine is in its fourth year of implementing a faculty and student co-created climate change & environmental health pre-clinical curriculum. This will be the second year of a longitudinal "Thread" that spans all 4 years. Emory is shifting attention from including more slide-based content to emphasizing outcomes for learners with assessment strategies (including OSCEs), core interactive activities (including use of virtual reality in a climate justice workshop), application across the clinical clerkships, and curricular evaluation.
- **Recommendations:** We continue to build upon student focus group feedback on diversifying teaching modalities as identified here, clinical integration, and interprofessional education opportunities. While additional mental health and Indigenous knowledge and value systems content were added this past year, these content areas can continue to be integrated longitudinally in the coming years.

Interdisciplinary Research	A+

- The University-Wide and interdisciplinary Emory Climate Research Initiative (ECRI) advances climate change research and teaching and is hosted at https://climate.emory.edu/. Emory's NIH-funded Climate and Health Actionable Research and Translation (CHART) Center adds to student opportunities.
- **Recommendations**: Recruit more faculty to serve as student mentors during "Discovery Phase" projects and host periodic "works in progress" meetings for all of our students engaged in climate research.

Community Outreach and Advocacy	A

- Emory has continued to bolster its community-facing courses through the installment of a new series, "Community Conversations: Emory Talks Climate Action," in addition to its pre-existing "Climate Talks" series and the podcast, "AmpliFIRE: Raising Voices Against Rising Temperatures."
- **Recommendations**: Students and faculty should work to increase access to locally-relevant planetary health educational materials for distribution to patients across all Emory-affiliated hospitals and clinics.

Support for Student-Led Initiatives	A

- Students interested in promoting and engaging in planetary health initiatives are well-supported at Emory. A number of mechanisms are in place to support funding for student-led projects, access to mentors and research opportunities, involvement in co-curricular student organizations, and participation in campus advocacy and curricular reform.
- **Recommendations**: Continued focus on student engagement in the local and global community (e.g. through volunteer opportunities, networking with local leaders, and community engagement) as well as hospital and healthcare sustainability initiatives will maximize the reach and impact of student efforts.

Campus Sustainability	B

- Emory has cultivated widespread acceptance of sustainability on campus, including at the medical school. Emory ranked #7 for top green colleges in 2024 according to the Princeton Review, and is aiming for a 50% energy reduction per square foot for Emory College and 25% for Emory Healthcare by 2025.
- **Recommendations**: Notably absent from the White House/HHS Health Sector Climate Pledge, Emory and Emory Healthcare should sign the pledge and ensure sufficient dedicated resources to bolster sustainability and resilience across its immense healthcare operations, elevating sustainability as a leadership priority.

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

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

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

Definitions & Other Considerations

Definitions:

- **Planetary Health:** is described by the Planetary Health Alliance as "the health of human civilisation and the state of the natural systems on which it depends." For example, topics such as climate change, declining biodiversity, shortages of arable land and freshwater, and pollution would all fall under the realm of planetary health. Both planetary health and traditional 'environmental health' examine the relationship between human health and the external environment, including extreme temperatures, chemicals, vector-borne diseases, etc. Planetary health explicitly concerns itself with the potential health harms associated with human-caused perturbations of natural systems. Therefore, the human health focus of planetary health makes the field well-adapted for the context of medical school education. Throughout this report card, we use the term planetary health to refer to this broad swath of topics, but resources do not need to explicitly include the term "planetary health" to satisfy the metric.

- **Sustainable Healthcare:** As defined by the Academy of Royal Colleges, sustainable healthcare involves ensuring the ability to provide good quality care for future generations by balancing the economic, environmental, and social constraints and demands within health care settings. A sustainable healthcare system maintains population health, reduces disease burden and minimizes use of healthcare services.

- **Education for Sustainable Healthcare (ESH):** is defined as the process of equipping current and future health professionals with the knowledge, attitudes, skills and capacity to provide environmentally sustainable services through health professional education, thus working to decrease the enormous environmental impact of the healthcare industry. Planetary Health Education is an integral part of this education rather than an end in itself. This is because knowledge on Planetary Health is required to be able to fully understand the necessity of sustainable healthcare as well as being part of the broader knowledge needed to fully protect and promote health. In summary, ESH is covered by the three Priority Learning Outcomes of the Centre of Sustainable Healthcare below, and Planetary Health Education is embraced in the first learning objective and is a fundamental requirement to achieve learning outcomes 2 and 3:

    1. Describe how the environment and human health interact at different levels.

    2. Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems.

    3. Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment.

- **Medical School vs. Institution:** When "medical school" is specified in the report card, this only refers to curriculum and resources offered by the School of Medicine and does not include offerings from other parts of the university (e.g. undergraduate departments (USA), other related departments (e.g. Public Health, Population Health departments). In contrast, when "institution" is specified in the report card, we are referring to the university more

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

- **Environmental history (Metric #19 in Curriculum Section):** This is a series of questions providers are taught to ask during medical encounters that elicit patients' exposures and environmental risk factors. Historically, this has included consideration of exposures like pesticides, asbestos, and lead, though in the modern era shaped by climate change, it can be expanded to include things like wildfire smoke exposure, air pollution and mold after flooding. Key components include place of residence over the lifecourse, occupational history, food and water sources (e.g. meat from industrial feeding operations, regular fishing in contaminated water, access to clean drinking water), and exposure to air pollution.

- **Elective:** The word "elective" refers to an optional course or lecture series that a medical student can opt to take part in but is not a requirement in the core curriculum. Generally, these elective courses take place in the preclinical curriculum but vary by school.

- **Clerkship:** This is a term used in the USA to refer to placements that medical students go on e.g. Pediatrics, General medicine, Psychiatry. In the UK these are referred to as rotations or placements.

Other considerations:

- If there are more than one "tracks" at your medical school with two different curricula (for example, Harvard Medical School has a Pathways and HST curriculum track), you can choose to fill out a report card for each track, or fill out just one report card and average the scores received by each track in cases where the scores are different (see the 2021 Harvard or Oxford report cards as examples).

Added to our resources in 2022, the Planetary Health Report Card Literature Review by Metric collates the evidence behind each of the metrics in the Planetary Health Report Card. It serves as a collection of references for further learning and a resource for those advocating for increased planetary health engagement at their institutions.

Planetary Health Curriculum

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

Curriculum: General

1.1. Did your medical school offer elective courses (student selected modules) to engage students in Education for Sustainable Healthcare or Planetary Health in the last year?	
3	Yes, the medical school has offered **more than one** elective whose primary focus is ESH/planetary health in the past year.
2	Yes, the medical school has offered **one** elective whose primary focus is ESH/planetary health in the past year.
1	The medical school does **not** have any electives whose primary focus is ESH/planetary health, but there are one or more electives that include a **lecture** on planetary health.
0	No, the medical school has **not** offered any electives on planetary health or electives that include ESH/planetary health topics in the past year.
Score explanation: An elective on planetary health was offered to M2s. The Climate Crisis and Clinical Medicine Elective remains an offering for M4s and is online for use by students and faculty at Emory and elsewhere. Several electives related to planetary health and climate change are also offered through Rollins School of Public Health.	

Curriculum: Health Effects of Climate Change

1.2. Does your medical school curriculum address the relationship between extreme heat, health risks, and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: Except as otherwise noted, all topics referenced below are addressed in Emory's disseminated climate change & health curriculum, with content co-produced by Dr. Becca Philipsborn, students Katie Steklac (M3), Isabella Amaniera (M3), Madhu Manivannan (M4), Irene Liu (M4), Emaline Laney (alumnus), Ben Rabin (alumnus), Riya Goel (M2) and Annie Emanuels (M2) and	

additional Emory students, faculty lecturers and course directors. These topics were addressed in the following in-depth lectures/ activities:

● Current lecture: "Heat and Its Effect on Migrant Workers" with Dr. Roxana Chicas is embedded in the Nephrology Course directed by Dr. Jim Bailey. Dr. Chicas discusses the impact of extreme heat on agricultural workers, describing how heat affects human health, field-based monitoring research methods and results found related to heat stress and renal function, and factors potentially influencing the renal health and heat response of agricultural workers.
● Current Lecture: Dr. Dilini Daswatta's delivers a full lecture on heat-related nephropathy in the Nephrology course. In Dr. Roshan George's lecture on urinalysis, she discusses how expanding zones of heat exposure coupled with social conditions are related to geographically-linked increases in kidney stones formation.
● Current lecture: Exercise Physiology by Dr. Jonathan Kim discusses heat-related illness, differentiates heat exhaustion and heat stroke, and discusses the need for prompt recognition. Discussion of heat illness in athletes is given context with Atlanta's Peachtree Road Race.
● Current Lecture: "Exercise and the Healthy Human 1" with Dr. Laurence Sperling, which highlights the role of exercise in cardiovascular disease prevention and health maintenance.
● Current Lecture: "Epidemiology and Pathophysiology" of Cerebrovascular Disease with Dr. Aaron Anderson is integrated into the Neurology Course directed by Dr. Dan Winkel. Dr. Anderson discusses temperature extremes as risk factors for acute cerebrovascular accidents with emphasis on health disparities and neighborhood level risk factors.
● Current Activities: "Introduction to Climate Change and the Practice of Medicine" and the workshop "Taking and Environmental and Exposure History" with Dr. Rebecca Philipsborn are integrated into Emory's longitudinal Community Learning and Social Medicine Curriculum (CLSM) course directed by Dr. Maura George, MD. The lectures include examples of populations with relatively greater risk of exposure to climate change. She discussed the importance of taking an environmental exposure history and how to create an appropriately detailed environmental exposure history from all patients.
● Current Lecture: Environmental Emergencies" with Dr. Douglas Ander is presented in the M4 Emergency Medicine clerkship directed by Dr. Megan Henn and Dr. Steven Lindsey and includes management of hypothermia, frostbite and heat stroke with attention to specific vulnerable communities in Atlanta.

1.3. Does your <u>medical school</u> curriculum address the impacts of extreme weather events on individual health and/or on healthcare systems?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Addressed in disseminated climate change & health curriculum for pre-clinical students as well as M3 Pediatrics clerkship and several activities address the impact of extreme heat on individual patients (see above). In addition:

● Workshop component– "Introduction to Climate Change and the Practice of Medicine" reviews a case of hospital evacuation, disrupted supply chains, and patients displaced by extreme weather.

● *Current lecture - "End stage Congenital Heart Failure and Cardiac Transplant" with Dr. Kunal Bhatt examines how natural disasters disrupt healthcare delivery, and proposes methods to support patients reliant on medical devices such as LVAD and HD in extreme weather scenarios.* ● *Current Lecture: "Environmental Health: Assessing Exposures Across the Lifespan" describes the health impacts of heatwaves.* ● *M3 Pediatrics Workshop also discusses disaster scenarios.*

1.4. Does your <u>medical school</u> curriculum address the impact of climate change on the changing patterns of infectious diseases?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: Addressed in pre-clinical students climate & health curriculum at several different points: ● *Current Lecture: "Pneumonia" with Dr. Varun Phadke. Climate content includes descriptions of the clinical features of pneumonia and ways to identify elements of a patient's syndrome that provide clues to the microbial etiology. He discusses the relationship between environmental factors, pathogen and host, as well as the effect of extreme heat, air pollution and extreme weather on pneumonia incidence.* ● *Current Lecture: "Malaria" with Dr. Jennifer Spicer includes discussion of the impact of climate change on malaria distribution and how to identify the most likely Plasmodium species causing an infection based on epidemiology.* ● *Current Lecture: "Tick-borne Illness" with Dr. Jeffrey Lenox. Dr. Lenox describes the geographic distributions of tick-borne diseases and includes discussion of Lyme disease range and predictions for expanded vector distribution with climate change.* ● *Current Activity: Case included on climate and health as a "headline" topic in Dr. Wendy Armstrong's summation symposium. At the end of the semester, each small group is assigned a research topic to present to the entire class. One of the small groups was assigned a topic on climate change. The main question was: " Discuss the effects of climate change on health, with a particular focus on infectious diseases and epidemics. Outside of the current efforts to reduce warming, are there other ways that physicians or public health officials can help mitigate risk for diseases?"*	

1.5. Does your <u>medical school</u> curriculum address the respiratory health effects of climate change and air pollution?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Addressed and assessed in pre-clinical students' climate & health curriculum, particularly in the Pulmonology Course directed by Dr. Ashish Mehta.

● Current Lecture: "Inside Out: Climate Change and Lung Health" by student Riya Goel, Dr. Ashish Mehta and Dr. Rebecca Philipsborn with input from Dr. Adam Klein, Dr. Jon Popler reviews the interlinks between climate change and pollution and aeroallergens.
● Current Small Group – "Pulmonary Function Test Interpretations." Students analyze socioeconomic and racial disparities in lung health related to zoning, transportation, and other policies that result in disproportionate air pollution levels in communities of color.
● Current Lecture: "COPD" Dr. Ashish Mehta. Dr. Mehta reviews sources of particulate matter pollution and differentiates between coarse (PM10) and fine (PM2.5) particulate matter.
● Current Lecture: "Asthma" with Dr. Gerald Lee (2023) discusses how particulate matter air pollution affects respiratory health in children and adults and contribution of environmental factors to asthma disparities.
● Current Lecture: "Common Pediatric Respiratory Disorders" with Dr. Lokesh Guglani, who describes how environmental pollution compromises pulmonary function and lung development.
● Current Lecture: "Introduction to Climate Change and the Practice of Medicine" with Dr. Rebecca Philipsborn reviews a case of a child with asthma triggered by environmental exposures, with content as noted above.
● Current Lecture: "Pulmonary Pharmacology" with Dr. TJ Murphy covers inhaled size of particulate matter particles/wildfires, soot, and climate change.

1.6. Does your <u>medical school</u> curriculum address the cardiovascular health effects of climate change, including increased heat?

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

Score explanation: Addressed in pre-clinical climate & health curriculum.

● Current Lecture: "Exercise and the Healthy Human" with Dr. Laurence Sperling. Discussed the effect of air pollution and wildfires on risk of cardiovascular disease and stroke. Also defined urban heat islands and impact of zip code on health.
● Current lecture: "Pathology of Atherosclerosis and Ischemic Heart Disease" with Dr. Douglas Parker. Climate content included discussion of major risk factors in the development of atherosclerosis. He described how air pollution exposure contributes to vascular remodeling and atherosclerosis through oxidative stress and inflammation and relates environmental stressors to the burden of CV disease.
● Current lecture: "Introduction to Congenital Heart Disease" with Dr. Matthew Carazo. Climate content includes discussion of the frequency of congenital heart disease. He also outlines the impact of maternal ambient heat exposure on fetal development.
● Current lecture: "End stage Congenital Heart Failure and Cardiac Transplant" with Dr. Kunal Bhatt highlights LVAD patients who were unable to charge their device due to power outage following Hurricane Maria.

1.7. Does your <u>medical school</u> curriculum address the mental health and neuropsychological effects of environmental degradation and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Addressed in pre-clinical climate & health curriculum. While we have curricular content addressing this metric, we recognize the scope and importance of this topic and do not feel that we cover it sufficiently at this time. Emory has plans for continued integration in partnership with Dr. Wendy Baer.

● Current lecture: "Somatic Symptom & Related Disorders" by Dr. Wendy Baer discusses disordered stress response and potential environmental triggers and contributions to trauma history (including Adverse Childhood Experiences (ACEs) building off of a Climate Psychiatry Alliance framework. Dr. Baer also discusses Green Space and Stress Management as considerations for treatment plans.
● Current Lecture: "Environmental determinants of health across the lifespan" discusses environmental determinants of mental health from a growth and development perspective, across the lifespan and as one ages.
●Activities: "Introduction to Climate Change and the Practice of Medicine" and "Taking an Environmental and Exposure History" discuss the mental health impacts of climate change, climate-health exposure pathways and displacement as risk factors for mental health sequelae and how these disproportionately affect vulnerable populations.
● Recorded Elective Lecture: "The Global Climate Emergency: Psychological Aspects" with Dr. Lise van Sustern discusses the impacts of climate change on cognition, cognitive performance, and mental health.

1.8. Does your <u>medical school</u> curriculum address the relationships between health, individual patient food and water security, ecosystem health, and climate change?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Addressed in pre-clinical climate & health curriculum and small groups.

● Current Lecture: "Nutritional Deficiencies" with Dr. Meena Prasad discussed the impact of climate change on food insecurity and nutrition.
● Current Lecture: "The Global Syndemic of Climate Change, Malnutrition and Obesity" by Dr. Sobenna George is embedded within the Endocrinology Course with support from Dr. Eric Felner.
● Current Lecture: Dr. Cassandra Quave, an expert in ethnobotany, gives a lecture that existed prior to the climate and environmental health curriculum and supplements its content. She discusses the use and development of botanical treatments, traditional medicines, and how climate change, habitat loss, and overharvesting threaten the survival of medicinal plants.

● *Small Groups: In the Endocrinology small groups on short stature and diabetes with Dr. Eric Felner, student learning points include climate change and global undernutrition and topics that link individual patient health with global systems.*

1.9. Does your <u>medical school</u> curriculum address the outsized impact of climate change on marginalized populations such as those with low SES, women, communities of color, Indigenous communities, children, homeless populations, and older adults?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: Addressed in pre-clinical climate & health curriculum across several lectures and small groups, as well as in elective content. ● *Current topic: "Introduction to Climate Change and the Practice of Medicine" with Dr. Rebecca Philipsborn introduces climate change as a social justice issue and health equity multiplier, outlines the intersection of environmental exposures related to redlining and structural discrimination, and includes the exposure-vulnerability-adaptive capacity framework for approaching risk.* ● *Current Lecture: "Assessing Exposures Across the Lifespan" with Dr. Rebecca Philipsborn introduces the environmental vulnerability framework, discussing intersectionality and integrating health disparities in the conceptual framework of exposure risk, physiologic susceptibility and adaptive capacity and emphasizes climate change as a social determinant of health* ● *Current Lecture: "Epidemiology and Pathophysiology of Cerebrovascular Disease" with Dr. Aaron Anderson – includes in depth discussion of neighborhood as risk factor with learning point on temperature extremes and risk for acute cerebrovascular accident.* ● *Current Lecture: "Maternal Adaptations of Pregnancy" with Dr. Mary Dolan – includes discussion of disparities around the effects of climate change on maternal-fetal development and health outcomes.* ● *Current Small Group: "Case-Based Learning: Lung Disease." Pulmonary Function Test (PFT) interpretation includes a case of a child, and discusses the effect of pollution on asthma and PFTs in children in the context of analyzing socioeconomic and racial disparities in lung health related to zoning, transportation, and other policies that result in disproportionate air pollution levels in communities of color.*	

1.10. Does your <u>medical school</u> curriculum address the unequal regional health impacts of climate change globally?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: Addressed in pre-clinical climate & health curriculum. In particular, Dr. Sobenna George discusses the "Global Syndemic" of obesity, undernutrition, and climate change, Dr.	

Philipsborn addresses the unequal health impacts of climate change in her introductory lecture by presenting climate change as a human rights issue and social and intergenerational justice concern, and Drs. Chicas and Daswatta discuss global migration and climate change. A Climate Justice workshop reinforces these topics.

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

1.11. Does your <u>medical school</u> curriculum address the reproductive health effects of industry-related environmental toxins (e.g. air pollution, pesticides)?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: Addressed in pre-clinical climate & health curriculum. *Current Lecture: "Maternal Adaptations of Pregnancy" with Dr. Mary Dolan. She discusses the effects of climate change on maternal-fetal development and health outcomes, and outlines the racial disparities in exposure to heat and air pollution among pregnant women. Dr. Dolan mentions how this contributes to disparities in perinatal outcomes.* *Dr. Philipsborn reviews pregnancy in the environmental vulnerability framework introduced in her aforementioned lecture on exposures across the lifespan. Dr. Rebecca Philipsborn also discusses the impact of climate change on pregnancy outcomes in her aforementioned introductory lecture on Climate Change and the Practice of Medicine.*	

1.12. Does your <u>medical school</u> curriculum address important human-caused environmental threats that are relevant to the university's surrounding community?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.
Score explanation: Addressed in the pre-clinical climate & health curriculum. *In particular, Dr. Philipsborn's introductory lecture focused on the lengthening pollen season, hurricanes in south Georgia, air pollution in Atlanta, food insecurity and discussion of local environmental threats continued throughout the curriculum. Dr. Mary Dolan's lecture on "Maternal Adaptations of Pregnancy" addressed the disparate exposures to heat and air pollution with regard to perinatal outcomes. Dr. Kunal Bhatt's lecture "End stage CHF, LVAD, and cardiac transplant" discusses an example of LVAD patients unable to charge their device due to power outage following natural disasters such as hurricanes. Dr. Hassan discussion of how heat & air pollution affect vulnerable patients. Additionally, Dr. Roxana Chicas' lecture pertains to how extreme heat is impacting*	

migrant farmworkers in Georgia. Dr. Dilini Daswatta's lecture also covers heat-related nephropathy.

Further, redlining and its impacts on local communities within and surrounding Atlanta are discussed in several lectures in the core curriculum. This topic is included within Dr. Philipsborn's "Introduction to Climate Change and the Practice of Medicine" lecture, Dr. Anderson's "Epidemiology and Pathophysiology of Cerebrovascular Disease" lecture, and on multiple occasions in the pulmonology, nephrology, and neurology modules.

1.13. To what extent does your medical school emphasize the importance of Indigenous knowledge and value systems as essential components of planetary health solutions?	
3	Indigenous knowledge and value systems are **integrated throughout** the medical school's planetary health education
2	Indigenous knowledge and value systems as essential components of planetary health solutions are included **briefly** in the core curriculum.
1	Indigenous knowledge and value systems as essential components of planetary health solutions are included in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Indigenous knowledge and value systems are currently emphasized as essential components of planetary health solutions in the core curriculum by Dr. Cassandra Quave, an expert in ethnobotany, who discusses the use and development of botanical treatments, traditional medicines, and how climate change, habitat loss, and overharvesting threaten the survival of medicinal plants.

In 2023, a required 2 hour Environmental Justice workshop was added for all first year students with 4 individual sessions spanning food insecurity and plant-based diets, indigenous health, artificial intelligence and child rights and intergenerational justice. The session is entitled "Indigenous perspectives on planetary health" provides an introduction to this topic and a foundation for further inclusion.

Emory is also hosted a joint meeting between The Society for Economic Botany and Society of Ethnobiology June 2023 titled "Human and Planetary Health: Everything is Connected."

1.14. Does your medical school curriculum address the outsized impact of anthropogenic environmental toxins on marginalized populations such as those with low SES, women, communities of color, children, homeless populations, Indigenous populations, and older adults?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Emory covers this topic via several touch points across the core curriculum. Some examples include discussion of air pollution and chemical mobilization in extreme weather events in our "Pulmonary Function Test Interpretations" small group. In this discussion, small groups analyze socioeconomic and racial disparities in lung health related to zoning, transportation, and other policies that result in disproportionate air pollution levels in communities of color.

This topic is further discussed in the context of redlining by Dr. Philipsborn in her "Environmental determinants of health across the lifespan," and "Taking an Environmental and Exposure History" for both M1s and during the pediatric clerkship. Other notable lectures offered by Emory include "Heat and its effect on migrant workers"; "Maternal adaptations to pregnancy" as well as "Intro to Climate Justice and Health." Lastly, there are relevant lectures within Emory's Community Learning and Social Medicine core requirement.

During the new Climate Justice workshop, students discuss this topic in depth and experience a Virtual Reality module developed by colleagues at the University of Georgia on redlining and environmental health.

Curriculum: Sustainability

1.15. Does your <u>medical school</u> curriculum address the environmental and health co-benefits of a plant-based diet?	
3	This topic was explored **in depth** by the **core** curriculum.
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: Addressed in the pre-clinical climate & health curriculum.

In particular, environmental and health co-benefits of a plant-based diet are addressed during Endocrinology in Dr. George's dedicated lecture, "Global Syndemic of Climate Change, Malnutrition, and Obesity" lecture, during the Cardiology module, during Human Development in the preventive cardiology lecture by Dr. Laurence Sperling and during the Introduction to Climate Change and the Practice of Medicine.

The new Environmental Justice workshop includes a session on plant-based diets.

1.16. Does your <u>medical school</u> curriculum address the carbon footprint of healthcare systems?	
3	This topic was explored **in depth** by the **core** curriculum
2	This topic was **briefly** covered in the **core** curriculum.
1	This topic was covered in **elective** coursework.
0	This topic was **not** covered.

Score explanation: This topic is addressed in the pre-clinical climate & health curriculum and the interprofessional curriculum.

- *"Introduction to Climate Change and the Practice of Medicine" emphasizes the approximate percent contribution of the US Healthcare sector to US greenhouse gas emissions.*

- *"Inside Out: Climate Change and Lung Health" by student Riya Goel, Dr. Ashish Mehta and Dr. Rebecca Philipsborn with input from Dr. Adam Klein, Dr. Jon Popler, discusses the greenhouse gas implications of anesthetic gasses as well as the propellants in metered- dose inhalers.*

- *"Climate Justice in Healthcare Delivery" - an interprofessional activity for first year students challenges students to pose solutions to healthcare's waste, including emissions .*

1.17. Does your <u>medical school</u> curriculum cover these components of sustainable clinical practice in the <u>core</u> curriculum? (points for each)	
2	The health **and** environmental **co-benefits** of **avoiding** over-medicalisation, over-investigation and/or over-treatment
2	The environmental impact of **pharmaceuticals** and over-prescribing as a cause of climate health harm. Alternatively teaching on **deprescribing** where possible and its environmental and health co-benefits would 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. This is commonly known as social prescribing in the UK.
1	Environmental impact of **surgical** healthcare on planetary health and the climate crisis, and how can it be mitigated.
1	The impact of **anesthetic** gasses on the healthcare carbon footprint and ways to reduce anesthesia environmental impacts, such as total intravenous anesthesia or choosing less environmentally harmful anesthetic gas options with reduced greenhouse gas emissions.
1	The impact of **inhalers** on the healthcare carbon footprint and the environmental benefit of dry powdered inhalers over metered dose inhalers.
1	**Waste production** within healthcare **clinics** and strategies for reducing waste in clinical activities (e.g. single use items in the inpatient or outpatient setting)

Score explanation:

(2) The Endoscopy 101 lecture covers targets for greening endoscopy, including analyzing/addressing the drivers of unnecessary procedures/over treatment. Additionally, throughout the radiology thread during M3 year, mandatory ACR "Choosing Wisely" modules go over the appropriate indications for different imaging modalities. Often, there are explanations for choosing imaging including discussion about waste production and resource utilization.

(2) Dr. Preeti Jaggi, a pediatric infectious disease physician, will be giving a lecture on stewardship in the pediatric clerkship starting March 4th including decreasing waste of antimicrobials and the impact of pharmaceuticals on climate change.

(1) Dr. Philipsborn's lectures highlight the need to assess and address environmental exposure history in children with asthma in addition to prescribing medical therapies and the benefits of active transport. Dr. Laurence Sperling discusses health benefits of active transportation and exercise within the field of preventive cardiology.

(1) The Endoscopy 101 lecture identifies areas of surgical waste such as single use items (PPE, packaging), water use, decontamination, travel and detergents.

(1) The impact of anesthetic gasses and pharmaceuticals are covered in the new "Inside Out" pulmonology lecture.

(1) The impact of inhalers is covered in the pulmonology module.

Curriculum: Clinical Applications

1.18. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies to have conversations with patients about the health effects of climate change?	
2	Yes, there are strategies introduced for having conversations with patients about climate change in the **core** curriculum.
1	Yes, there are strategies introduced for having conversations with patients about climate change in **elective** coursework.
0	No, there are **not** strategies introduced for having conversations with patients about climate change
Score explanation: In the Rheumatology module directed by Dr. Jennifer Brandt, students are taught how to offer anticipatory guidance to patients with gout, SLE and dermatomyositis related to climate change. For example, counseling patients with gout to prioritize hydration during hot days; counseling patients with photosensitivity related to SLE and DM to avoid prolonged sun exposure. In the Introduction to Climate Change and the Practice of Medicine Lecture, students are given a framework for integrating discussions into clinical care.	

1.19. In training for patient encounters, does your <u>medical school's</u> curriculum introduce strategies for taking an environmental history or exposure history?	
2	Yes, the **core** curriculum includes strategies for taking an environmental history.
1	Only **elective** coursework includes strategies for taking an environmental history.
0	No, the curriculum does **not** include strategies for taking an environmental history.
Score explanation: In the pulmonary module, students learn how to evaluate patient risk related to air pollution or other respiratory exposures with Dr. Ashish Mehta. Students also receive talking points for	

how to counsel patients about potential health harms. This information is delivered during small group sessions to allow students to discuss and actively engage with the material. This is just one example of pre-clinical course-specific history integration. All M3s receive an Environmental Exposure History workshop, and Dr. Douglas Ander discusses environmental exposures in "Environmental Emergencies" in EM Clerkship for M4s.

Curriculum: Administrative Support for Planetary Health

1.20. Is your <u>medical school</u> currently in the process of implementing or improving Education for Sustainable Healthcare (ESH)/planetary health education?	
4	Yes, the medical school is currently in the process of making **major** improvements to ESH/planetary health education.
2	Yes, the medical school is currently in the process of making **minor** improvements to ESH/planetary health education.
0	No, there are **no** improvements to planetary health education in progress.
Score explanation: The Climate Change & Health Thread has officially launched to support formal integration of content throughout all components of the medical education curriculum, from pre-clinical throughout clinical years. This year Emory launched a new interprofessional health challenge for first years across all health professions, and IPE-ACTS included a "Climate Justice in Healthcare Delivery Challenge" that is ongoing. This year's focus will be on leveraging medical education theoretical frameworks to improve and evaluate the curriculum, building upon interprofessional engagement in the clinical learning environment, and implementation of activities in the clinical years.	

1.21. How well are the aforementioned planetary health/Education for Sustainable Healthcare topics integrated longitudinally into the <u>core</u> curriculum?	
6	Planetary health/ESH topics are **well integrated** into the core medical school curriculum.
4	**Some** planetary health/ESH topics are appropriately integrated into the core medical student curriculum.
2	Planetary health/ESH is not integrated and is primarily addressed in **(a) standalone lecture(s).**
0	There is **minimal/no** education for sustainable healthcare.
Score explanation: The pre-clinical Climate Change & Health curriculum, first introduced for the class of 2024, spans most organ-systems across the first 18 months of medical school and the thread now spans all four years. The climate & health curriculum team engage faculty members (including lecturers and course directors) to incorporate climate learning points into existing lectures, small group activities, and clerkship didactics as well as add new dedicated climate and health didactics.	

1.22. Does your <u>medical school</u> employ a member of faculty to specifically oversee and take responsibility for the incorporation of planetary health and sustainable healthcare as a theme

throughout the course?	
1	**Yes,** the **medical school** has a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare
0	**No**, the **medical school** does **not** have a specific faculty/staff member responsible for overseeing curricular integration of planetary health and sustainable healthcare.
Score explanation: Dr. Rebecca Philipsborn is the Thread Director for the Climate Change & Environmental Health thread and curriculum at Emory School of Medicine. In this role, Dr. Philipsborn coordinates climate learning points with students and participating faculty members, supports student partners in co-creating the curriculum, works with course faculty, and delivers some of the educational content included in the curriculum.	

Section Total (69 out of 72)	**96.0%**

Back to Summary Page here

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

Interdisciplinary Research

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

2.1. Are there researchers engaged in planetary health research and healthcare sustainability research at your medical school?	
3	Yes, there are faculty members at the medical school who have a primary research focus in planetary health or healthcare sustainability.
2	Yes, there are individual faculty members at the **medical school** who are conducting research **related** to planetary health or healthcare sustainability, but it is not their primary research focus.
1	There are planetary health and/or healthcare sustainability researchers at the **institution**, but none associated with the medical school.
0	No, there are **no** planetary health and/or healthcare sustainability researchers at the **institution** or **medical school** at this time.
Score explanation: *The Emory Climate Research Initiative was created in 2022 to strengthen Emory's academic response to the global climate crisis. The core faculty leadership team is composed of representatives from each school within Emory (Public Health, Theology, Law, Medicine, College of Arts and Sciences, Oxford College, Nursing, and Business).*	

2.2. Is there a dedicated department or institute for interdisciplinary planetary health research at your institution?	
3	There is at least one dedicated department or institute for interdisciplinary planetary health research.
2	There is **not currently** a department or institute for interdisciplinary planetary health research, but there are **plans** to open one in the next 3 years.
1	There is an **Occupational and Environmental Health department**, but no interdisciplinary department or institute for planetary health research.
0	There is **no** dedicated department or institute.
Score explanation: The Emory Climate and Health Research Incubator is an initiative of Rollins School of Public Health and a university-wide effort at Emory University to advance climate change scholarship, teaching, partnership with local Atlanta communities and across the globe. Current	

co-directors of the Emory Climate and Health Research Incubator include faculty from Rollins School of Public Health, and leadership also includes faculty from the School of Medicine, School of Nursing, and more. *Additionally, the Emory Climate Research Initiative and Office of Sustainability Initiatives are hubs for coordinating interdisciplinary research.*

2.3. Is there a process by which communities disproportionately impacted by climate change and environmental injustice give input or make decisions about the research agenda at your medical school?	
3	Yes, there is a process in which community members impacted by climate and environmental injustice have decision-making power in the climate + environmental research agenda.
2	Yes, there is a process in which community members impacted by climate and environmental injustice **advise** the climate + environmental research agenda.
1	**No**, but there are **current efforts** to establish a process for community members to advise or make decisions on the research agenda.
0	There is **no** process, and **no** efforts to create such a process.
Score explanation: Emory provides various avenues through which communities that are disproportionately impacted by climate change within and around Atlanta can provide input and become decision-makers pertaining to the direction of our medical school's research agenda. HERCULES community engagement core, Emory's Urban Health Initiative, and The Pediatric Environmental Health Specialty Unit (PEHSU) serve to prioritize the voices of local communities on research questions and outreach that in turn feeds back into research efforts at Emory's schools of medicine, nursing, and public health.	

2.4. Does your institution have a planetary health website that centralizes ongoing and past research related to health and the environment?	
3	There is an easy-to-use, adequately comprehensive website that centralizes various campus resources related to health and the environment including all of the following: upcoming events, leaders in planetary health at your institution, and relevant funding opportunities.
2	There is a website that **attempts to centralize** various campus resources related to health and the environment, but it is hard-to-use, not updated, or not adequately comprehensive.
1	The **institution** has an **Office of Sustainability website** that includes **some** resources related to health and the environment.
0	There is **no** website.
Score explanation: Emory has a website devoted to the environment and sustainability on campus and within the Atlanta community: Emory Sustainability. Through this platform, Emory conducts an inventory of research every three years that includes sustainability as a component. The ECRI website and The Emory Climate and Health Research Incubator websites also meet these criteria - see metric #2 above.	

2.5. Has your institution recently hosted a conference or symposium on topics related to planetary health?	
4	Yes, the medical school has hosted at least one conference or symposium on topics related to planetary health in the past year.
3	Yes, the **institution** has hosted at least one conference or symposium on topics related to planetary health in the past year.
2	Yes, the **institution** has hosted a conference on topics related to planetary health in the past three years.
1	The **institution** has not hosted any conferences directly, but they have provided financial support for a local planetary health event.
0	No, the **institution** has not hosted a conference on topics related to planetary health in the past three years.
Score explanation: In addition to this symposium, Emory has hosted numerous Climate Talks over the past two years, with topics including intersectional and interfaith focuses. Emory hosts the annual Break the Cycle of Environmental Health Disparities conference in association with the Southeast Environmental Health Specialty Units. In 2023, the theme was breaking the cycle of health disparities for children from indigenous communities. *The Energy Justice Youth Sustainable Development Conference is a two-and-a-half day conference (Aug 25-27) on Emory University's campus where youth leaders engage in energy justice issues through panel sessions and an interactive case study.*	

2.6. Is your medical school a member of a national or international planetary health or ESH organization?	
1	Yes, the medical school is a member of a national or international planetary health or ESH organization
0	No, the medical school is **not** a member of such an organization
Score explanation: Emory University School of Medicine is a member of both the Planetary Health Alliance (via Emory University as a whole) and Global Consortium on Climate and Health Education. Emory is one of the partners of Climate Resources for Health Education.	

Section Total (17 out of 17)	**100%**

Back to summary page here

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

Community Outreach and Advocacy

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

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

Score explanation: Medical Students for Climate Action and preclinical curriculum leaders have partnered with Emory's longitudinal Community Learning and Social Medicine (CLSM) thread to partner with several community organizations that directly address issues of environmental justice, including but not limited to the Emory Farmworker Project and Emory's Urban Health Initiative. Preclinical students spend one half day every other week at these sites learning about their mission and co-creating a project they complete before clinical year. Some final projects improve an organization's sustainability by streamlining processes or reducing waste.

Emory has been awarded a $3.8M grant from the National Institutes of Health (NIH) to establish the Climate & Health Actionable Research Translation Center (CHART), which will focus on researching the impacts of climate change on health and developing action-oriented strategies to protect the health of individuals and communities. The Community Engagement Core (CEC) of the CHART Center will actively engage local community partners to provide opportunities for bidirectional learning and equitable partnership for the Center's current and future research.

Emory published a 2023 Climate Action Plan, which outlines Emory's progress towards its current climate commitments and makes recommendations for Emory's campus and community to reach its climate-related goals. This plan includes a Community and Culture section, which recommends tangible actions for Emory to build equitable partnerships to increase capacity for climate action across Atlanta.

Emory Global Health Institute, GA Tech's CREATE X, the Coulter Department of Biomedical Engineering at Georgia Tech & Emory, hosted a hackathon that allows multidisciplinary teams to create creative solutions to urgent and complex health issues. This year's theme was Climate Change; teams developed innovative and large-scale solutions to address the effects of urban heat, urban flooding, and sea-level rise.

Emory Hospitals partner with MedShare to divert high-quality, unused medical equipment and supplies away from landfills to be used by under-resourced communities.

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

Score explanation: Emory hosts Climate Talks, an ongoing webinar series that is community-facing in that it is open to the public and recordings are available on Youtube. There are also three seasons of the Emory hosted podcast, "AmpliFIRE: Raising Voices Against Rising Temperatures" available on Soundcloud. This year, Emory hosted Ride for Their Lives Atlanta, a free ten mile bike ride that brought together Emory medical students, residents, and attendings to promote climate action. Ride for Their Lives is an international collaboration of healthcare providers that hosts annual cycling events to raise awareness about the urgent health threat that climate change poses for patients.

Additionally, as part of the development of the 2023 Climate Action Plan, Emory hosted a series entitled, Community Conversations: Emory Talks Climate Action. This series of six stakeholder engagement sessions were open to all community members as well as all Emory students, faculty and staff and facilitate the discussion of Emory's progress towards its goal of reducing emissions by 50% by 2030 and reaching net zero emissions by 2050.

3.3. Does your medical school have regular coverage of issues related to planetary health and/or sustainable healthcare in university update communications?	
2	Yes, all students **regularly** receive communication updates dedicated to planetary health and/or sustainable healthcare.
1	Yes, planetary health and/or sustainable healthcare topics are **sometimes** included in communication updates.
0	Students **do not** receive communications about planetary health or sustainable healthcare.

Score explanation: Yes, we have weekly email updates regarding coverage of issues related to sustainability and planetary health from our Office of Sustainability. Moreover, these topics are covered in Emory's on-campus magazine, "Emory Magazine."

3.4. Does the institution or main affiliated hospital trust engage in professional education activities targeting individuals post graduation with the aim of ensuring their knowledge and

skills in planetary health and sustainable healthcare remain up to date during their professional career?	
2	Yes, the **institution** or **main affiliated hospital trust** offers multiple in-person or online courses relating to planetary health and/or sustainable healthcare for post-graduate providers, including at least one with a primary focus of planetary health.
1	Yes, the **institution** or **main affiliated hospital trust** offers one course relating to planetary health and/or sustainable healthcare for post-graduate providers
0	There are **no** such accessible courses for post-graduate providers
Score explanation: Yes, Grand Rounds and other CME events have been offered in several departments, including the Departments of Radiology, Surgery, Internal Medicine, OB/Gyn, Pediatrics, and others on Climate Change and/or Environmental Health. There are also MedTalk sessions dedicated to educating faculty to teach about climate and health.	

3.5. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about environmental health exposures?	
2	Yes, **all** affiliated hospitals have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.
0	**No** affiliated medical centers have accessible educational materials for patients.
Score explanation: Emory School of Medicine has a large network of affiliated hospitals: the Emory Healthcare Network, Children's Healthcare of Atlanta, Grady Memorial Hospital, and the Atlanta VA Hospital. Some of these hospitals have more accessible patient-facing materials than others. *Several Emory School of Medicine Faculty Members are members of the HERCULES Exposome Research Center which has curated a number of resource guides on different environmental health topics for patients in the Atlanta community. These resources can be found here. Additionally, Emory in partnership with Grady Memorial Hospital runs the Georgia Occupational and Toxicology Clinic which houses physicians who work with patients to diagnose and treat a variety of occupational and environmental diseases, poisonings, and exposures to hazardous substances.* *Education materials from the Pediatrics Environmental Health Specialty Units (PEHSU) are used throughout Emory's Pediatric Departments. PEHSU created a social media campaign using #ProtectKidsHealth to disseminate information on the impact of various environmental health exposures including but not limited to air pollution, lead, arsenic, and phthalates. Additionally, PEHSU held a seminar for school nurses and school based health care workers regarding COVID-19 safe cleaning and disinfecting practices.*	

3.6. Does your medical school or its primary affiliated hospital have accessible educational materials for patients about climate change and health impacts?	
2	Yes, **all** affiliated hospitals have accessible educational materials for patients.
1	**Some** affiliated hospitals have accessible educational materials for patients.

0	**No** affiliated hospitals have accessible educational materials for patients.

Score explanation: As above, Emory School of Medicine has a large network of affiliated hospitals: the Emory Healthcare Network, Children's Healthcare of Atlanta, Grady Memorial Hospital, and the Atlanta VA Hospital. Some of these hospitals have more patient-facing materials than others.

Education materials from the Pediatrics Environmental Health Specialty Units (PEHSU) are used throughout Emory's Pediatric Departments. PEHSU created a hurricane preparedness guide to support planning, response and recovery efforts for families in hurricane-prone regions.

A trifold pamphlet has been distributed to school nurses in all of Georgia and to clinics at Children's Hospital of Atlanta (CHOA) which was created using adapted materials from Georgia Clinicians for Climate Action, supported by the Pediatric Environmental Health Specialty Units. CHOA also provides teaching sheets to parents to assist in learning about and managing their child's asthma diagnosis. These sheets include information on environmental and climate related triggers for the condition.

In 2022, the NIH awarded Emory University and the University of Georgia a $4 million grant to launch the Center for Children's Health Assessment, Research Translation and Combating Racism (CHARTER). The organization's mission is to translate research findings regarding the impact of climate change and environmental health on pediatric populations into communication products to be disseminated throughout Georgia communities.

Section Total (12 out of 14)	**85.7%**

Back to summary page here

Are there additional community engagement and advocacy resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Support for Student-Led Planetary Health Initiatives

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

4.1. Does your medical school or your institution offer support for medical students interested in enacting a sustainability initiative/QI project?	
2	Yes, the **medical school** or **institution** *either* offers grants for students to enact sustainability initiatives/QI projects *or* sustainability QI projects are part of the core curriculum.
1	The **medical school** or **institution** encourages sustainability QI projects (to fulfill clerkship or longitudinal requirements) and offers resources to help students succeed in these projects, **but** there is no student funding available and there is no requirement to participate.
0	No, **neither** the medical school or the institution offer opportunities or support for sustainability initiatives or QI projects.

Score explanation: Student-Led sustainability initiatives are well-supported by Emory. The University offers a General Sustainability and Social Justice Incentives Fund through the Office of Sustainability Initiatives. This fund allows all Emory and Emory Healthcare students, faculty and staff to request up to $3,000 for any project or research related to sustainability at Emory and the intersections of sustainability and social justice via application every Fall. In November of 2021, Emory Medical Students for Climate Action (MSCA) successfully received funds to assist with medical student focus groups addressing the sustainability curriculum changes. MSCA has since implemented an at-home composting workshop for Emory School of Medicine students using these funds as well as conducted several lunch-time talks and community initiatives.

In addition, The Green Labs at Emory & Green Offices at Emory offer all students, faculty and staff to apply for funding to implement new actions and innovations at their certified Green Lab or Office. The grant awards up to $5,000 for proposals that promote sustainable management of supplies, waste, and more via application every Fall. In November 2021, Emory Medical Students for Climate Action applied to certify the School of Medicine Anatomy Lab and received recognition as a Bronze Level Green Lab.

Finally, the Sustainability Revolving Fund, available through the Emory Office of Sustainability Initiatives, offers support for energy and water efficiency projects.

4.2. Does your institution offer opportunities for medical students to do research related to planetary health and/or sustainable healthcare?	
2	The **institution** has a **specific** research program or fellowship for students interested in doing planetary health/sustainable healthcare research.

1	There are research opportunities for students to perform research related to planetary health/sustainable healthcare, but these **require student initiative** to seek these out and carry them out in their spare time.
0	There are **no opportunities** for students to engage in planetary health/sustainable healthcare research.

Score explanation: Emory School of Medicine has an MD/MPH program in partnership with the Rollins School of Global Health with well established programs at Gangarosa Department of Environmental Health, including a Climate and Health Certificate program, which is an opportunity available to all medical students who choose to do an MPH. Additionally, all 4th year medical students who do not pursue an additional degree have a 5-month protected research block called "Discovery" and can pursue any academic research interest of their choosing with an Emory faculty advisor or an advisor at an outside institution. While this program is not specific to climate research, it is part of the curriculum and students have pursued projects related to planetary health and sustainable healthcare in recent years, including projects on climate change and migration, drinking water as an environmental justice issue, and operating room waste production.

The General Sustainability and Social Justice Incentives Fund offered by Emory's Sustainability Office, as noted in the first question of this section, will also fund planetary health and/or sustainable healthcare research initiatives. This funding is explicitly meant for research pertaining to planetary health and/or sustainable healthcare.

Moreover, Emory medical students can obtain funding for planetary health and/or sustainable healthcare research through the Emory Primary Care Consortium Grants. These grants provide $12,000 each fiscal year in grants of up to $3,000 to support any Emory-affiliated project that involves research, quality improvement, advocacy, development of clinical decision support tools, or educational activities in support of advancements in primary care. In the application criteria it is stated, "Project topics may center around patient safety, innovations in healthcare delivery, addressing disparities in healthcare, etc." Upon review, research pertaining to sustainability and planetary health would fall under healthcare disparities and/or patient safety. Moreover, it has been acknowledged that projects pertaining to public and environmental health have been conducted in the past. Any Emory student, resident, or faculty member (including VA faculty with an Emory appointment) may apply.

In more rare cases, graduate students who opt to take environmental health courses at the undergraduate campus are eligible to apply for the Lester and Turner Grants. These grants are intended to provide support for student-led research, educational opportunities, and environmental scholarship and leadership.

4.3. Does the medical school have a webpage where medical students can find specific information related to planetary health and/or sustainable healthcare activities and mentors within the medical school? For example, projects achieved, current initiatives underway at the medical school and/or contact of information of potential mentors.	
2	The **medical school** has a web page with specific information related to planetary health or sustainable healthcare that includes up-to-date information on relevant initiatives and contact information of potential mentors.
1	There is a **medical school** webpage that features some information on projects and mentors within planetary health and sustainable healthcare within the medical school, but it lacks key information.

0	There is **no medical-school** specific webpage for locating planetary health and/or sustainable healthcare projects or mentors.

Score explanation: There is no medical school specific webpage. Emory, as an institution, has a website dedicated to planetary health and/or sustainable healthcare activities and mentors within the medical school and outside of the medical school. It can be found at this site: https://climate.emory.edu/bios/index.html. Given the need for interprofessional collaboration to address planetary health, we do not plan to create a medical school-specific page. Additional initiatives can be found here under the "Initiatives" tab.

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

2	Yes, there is a student organization **with faculty support** at my medical school dedicated to planetary health or sustainability in healthcare.
1	Yes, there is a student organization at my medical school dedicated to planetary health or sustainability in healthcare but it **lacks faculty support.**
0	No, there is **not** a student organization at my institution dedicated to planetary health or sustainability in healthcare.

Score explanation: Emory Medical Students for Climate Action (MSCA) is an established student group working towards climate solutions and environmental justice at Emory University School of Medicine. This group is supported by a faculty advisor, Dr. Rebecca Philipsborn, and is an affiliate of Medical Students for a Sustainable Future (MS4SF). We can be reached via Twitter or via direct contact with Co-Presidents Irene Liu (irene.liu@emory.edu) or Riya Goel(riya.goel@emory.edu).

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

1	Yes, there is a student representative that serves on a medical school or institutional decision-making council/committee.
0	No, there is no such student representative.

Score explanation: Riya Goel (M2) is a student liaison who sits on the Emory Healthcare Sustainability Council and helps advise the medical school regarding sustainability practices. Madhu Manivannan (M4) represented medical students in Emory's University-wide Climate Action Task Force and Climate Action Plan. The curriculum has official representatives for each class year, including Caroline Olson (M1), Annie Emanuels (M2), Isabella Amaniera (M3), and Olivia Cote (M4).

Additionally, following the recent adoption of the 17 United Nations Sustainable Development Goals, Emory's Graduate Student Government Association (GSGA) has created a Chief Sustainability Officer role to lead the implementation of these goals across campus and is currently interviewing candidates. Medical students are eligible to apply.

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

Score explanation:

(1) There are many opportunities to gain experience in organic agriculture and sustainable food systems at Emory. The medical school has a community garden that helps cultivate food and community on Emory's campus. The Educational Gardens on campus are maintained by teams of Emory community members and are located all over campus.

(1) Emory holds numerous panels and speaker events related to planetary health. Emory students also receive support to attend global events, such as COP28.

Emory has continued to host "Climate Talks", an ongoing webinar and seminar series covering a range of issues pertaining to climate and planetary health.

In December 2023, 13 Emory Climate Talks students attended the United Nations Framework Convention on Climate Change, COP28, in Dubai, UAE.

In 2023, Emory MSCA and Emory School of Medicine hosted a Climate Justice and Health Equity Panel with Drs. Tracey Henry, Saria Hassan, and Noah Scovronick.

(1) In Spring of 2023, Emory's Medical Students for Climate Action offered a lunch-time Climate Justice and Health Equity Panel during Earth week.

(1) In 2023, the Science Gallery of Atlanta, sponsored by Emory University hosted JUSTICE exhibit that examines the relationships between individuals and the systems that impact their lives, the intersection of those systems more broadly, and the agency of individuals to influence those institutions.

(1) Emory offers numerous opportunities to engage with developing community resilience to anthropogenic environmental impacts. In Spring of 2023, Emory's Medical Students for Climate Action hosted a low-waste refill day, and a sustainable soiree with plastics free Emory.

(1) *Outdoor Emory is a student organization that offers opportunities for graduate and undergraduate students to participate in group wilderness and outdoor activities, including hiking, ziplining, caving, rafting, and more.*

Section Total (13 out of 15)	**86.7%**

Back to summary page here

Are there additional student-led initiative resources offered at your medical school or institution not yet asked about that you would like to describe? If so, please do so below.

Campus Sustainability

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

5.1. Does your medical school and/or institution have an Office of Sustainability?	
3	Yes, there is an Office of Sustainability with multiple full-time staff dedicated to campus sustainability. If the Office of Sustainability serves the entire campus, there is **at least one designated staff member** for sustainability at the hospital and/or medical school.
2	There is an Office of Sustainability with one or more full-time staff dedicated to campus sustainability, but **no specific staff member** in charge of medical school and/or hospital sustainability.
1	There are **no salaried sustainability staff,** but there is a sustainability task force or committee
0	There are **no** staff members **or** task force responsible for overseeing campus sustainability
Score explanation: Emory University has an Office of Sustainability Initiatives (est. 2006) currently led by Ciannat Howett, the Associate Vice President of Sustainability, Resilience, and Economic Inclusion, and Director Cyrus Bhedwar, who are responsible for institution-wide endeavors for sustainability. The School of Medicine has its own sustainability liaisons, including Shelby Smith, Erica Weaver, and Meg Ahrens, who are responsible for the medical school's respective initiatives that are run through the department of Continuing Medical Education.	

5.2. How ambitious is your institution/medical school plan to reduce its own carbon footprint?	
5	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2030**
3	The institution/medical school has a **written and approved plan** to achieve carbon neutrality by **2040**
1	The institution/medical school has a stated goal of carbon neutrality by **2040** but has **not created a plan** to reach that goal or the **plan is inadequate**
0	The institution/medical school does **not** meet any of the requirements listed above
Score explanation: Emory University has clearly stated goals regarding reduction of emissions: ● *Commit (in alignment with the IPCC) to reducing greenhouse gas emissions 50% by 2030 and reaching net zero emissions by 2050, using a 2010 baseline.*	

- *Achieve carbon neutral construction by 2025 for all new construction and to reduce emissions from purchased electricity.*
- *Support the City of Atlanta's plan to transition to 100% clean energy by 2035.*
- *Continue to reduce emissions from purchased electricity through continuing measures such as renewable onsite electricity generation, behavior change for energy use reduction, and advocating for changes in Georgia's energy grid to include more renewable energy.*
- *Establish a Carbon Neutral Degree within an academic unit to create the opportunity to offset the environmental impacts of a degree.*
- *Develop a carbon offset program, with preference for local projects with a social justice benefit, to allow students, faculty and staff to offset university travel, commuting, and other activities that produce greenhouse gas emissions.*
- *Enhance purchasing incentives and restrictions to increase sustainable refrigerant use and disposal.*

The Second Nature Greenhouse Gas emissions inventory tracker follows Emory's actual reductions as the institution works toward these stated goals.

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

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

Score explanation: Emory University has plans to self-generate 10% of energy used on campus to replace fossil fuel sources by 2025, but currently does not meet over 20% of its energy needs with renewable energy sources. Progress towards Emory's Energy and Natural Resources goals can be found in the most recent Annual Campus Services report. Compared to a 2015 baseline, as of 2021, Emory University has achieved an energy use per square foot (EUI) reduction of 12.9% and a total energy use reduction of 7.1%.

The ability to do this is very dependent on state and regional barriers that are beyond a medical school's control, such as regulatory constraints and utility leadership. Notwithstanding these limitations, Emory has instituted sustainable technologies for producing renewable energy across its campus, including solar photovoltaic power, co-generation from Emory's steam plant, biofuel used in Emory's Cliff shuttles, and geothermal energy in the LEED Platinum Emory Student Center. Additionally, with the enactment of HB 57, The Solar Power Free-Market Financing Act of 2015, Georgia became the first state in the Southeastern U.S. to legislatively approve private, third party sales of electricity from onsite solar systems as a means of financing solar energy for Georgia businesses, institutions, schools and homes. With third party financing through Solar Energy Procurement Agreements (SEPA) now legal in Georgia, Emory has been able to install more cost effective solar energy systems on Emory property.

In 2020, Emory University entered into a Solar Energy Procurement Agreement (SEPA) with Cherry Street Energy to install 5.5 MW of solar on the Atlanta campus. So far, Emory University has installed

about 8,000 solar panels across Emory University's rooftops and parking decks (see report above for locations).

5.4. Are sustainable building practices utilized for new and old buildings on the medical school campus, with design and construction of new buildings and remodeling of old buildings conforming to a published sustainability rating system or building code/guideline?	
3	Yes, sustainable building practices are utilized for new buildings on the medical school campus and the **majority** of old buildings **have been retrofitted** to be more sustainable.
2	Sustainable building practices are utilized for new buildings on the medical school campus, but most old buildings have **not been retrofitted.**
1	Sustainable building practices are **inadequately or incompletely** implemented for new buildings.
0	Sustainability is **not considered** in the construction of new buildings.

Score explanation: Energy efficiency is a priority for both new construction and in the renovations of older buildings on campus. The University and Healthcare system have over 4.25 million gross square feet of space in 40 LEED certified buildings. In 2017, Emory University Hospital Tower was the first Emory Healthcare building to become LEED-certified. Furthermore, all new construction on campus will be carbon neutral and major building renovations will be held to a minimum of LEED Silver standards by 2025. There are also plans to ensure that major building renovations will be held to a minimum of LEED Silver standards, and roof replacement projects will be cool, green and/or solar. These metrics and further plans for sustainable change are documented accordingly here.

5.5. Has the medical school implemented strategies to encourage and provide environmentally-friendly transportation options for students and reduce the environmental impact of commuting?	
2	Yes, the medical school has implemented strategies to encourage and provide **environmentally-friendly transportation options** such as safe active transport, public transport, or carpooling and these options are well-utilized by students. Alternatively, the campus location is not amenable to unsustainable forms of transportation by default.
1	The medical school has implemented **some** strategies to provide environmentally-friendly transportation options, but the options are **unsatisfactorily** accessible or advertised.
0	The medical school has **not** implemented strategies to encourage and provide environmentally-friendly transportation options.

Score explanation: Emory University has committed to reducing emissions through investment in and implementation of sustainable transportation solutions that all include the medical school.

- *In 2005, Emory University created the Cliff Shuttle system, which transports around 3 million riders annually to and from Emory facilities for free. The shuttles run on a B5 biofuel blend made from campus and hospital used cooking oils. The shuttle hub is directly in front of the medical school and one route provides transportation to Grady campus.*

- *Emory University developed a robust commute options program that offers resources and incentives to employees who commute by walking, biking, carpooling, vanpooling, and public transit. Graduate students who participate in this program also receive free 20-ride MARTA (Atlanta's public transit system) passess.*
- *Electric vehicle charging stations and an Emory Fleet Service rental program for Emory University students, faculty, and staff encourage sustainable travel options.*
- *Emory University supports a bicycling culture for those who cycle to work and around campus, offering a bike rental program, staff and student bicycling social groups, expansion of the PATH multi-use pathways network to and on campus, and a free bike repair shop on campus. The Bike Friendly University program of the League of American Bicyclists has given Emory a Silver rating for supporting bicyclists.*

Emory University's 2025 Sustainability Vision commits to:

- *Support flexible work days so that all non-essential personnel are expected to telecommute at least one day per week.*
- *Improve air quality through enforcement of Emory's No Idling Policy and other pollution prevention actions.*
- *Shift Emory University and Emory Healthcare vehicle fleets to meet national sustainable fleet certification standards.*
- *Extend incentives for sustainable commuting to students and expand bike shares and the Cliff Shuttle.*
- *Establish a carbon-reduction program that allows carbon emissions from Emory-purchased air travel to be offset by investments in a sustainability revolving fund or similar mechanism.*

To see more information pertaining to Emory's sustainable transportation initiatives please see this website. The complete Emory Sustainability Vision and Strategic Plan can be found here.

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

2	Yes, the medical school has **both** compost **and** recycling programs accessible to students and faculty.
1	The medical school has **either** recycling **or** compost programs accessible to students and faculty, but not both.
0	There is **no** compost or recycling program at the medical school.

Score explanation: Emory University's campus, including the medical school, has a robust, standardized set of composting and recycling bins that are readily available for student use. Additionally, Emory University no longer offers landfill waste containers in exterior spaces of campus. The Emory Recycles department also accepts waste and recyclables for any disposable stream at the Recycling Drop Off site (open 24/7). Emory University has also partnered with other departments to collect hard-to-recycle materials such as light bulbs, batteries, aerosol cans, clean Styrofoam, and electronic waste. Additionally, Emory Healthcare reduces and recycles waste generated in clinics by washing and reusing linens, reusing sharps containers, and donating materials/equipment for use in other countries. A complete report of Emory University's waste initiatives and policy can be found here.

However, since the pandemic, post-consumer composting has not been accepted by area vendors although the Office of Sustainability has been working with our waste vendor Goodr to re-implement post-consumer composting. Emory is currently able to compost pre-consumer organic materials (namely kitchen scraps and animal bedding from labs).

Moving forward, Emory's Sustainability Vision & Strategic Plan includes the following action items:

- *All university events will be zero municipal landfill waste by 2025.*
- *Divert 95% of non-construction waste from municipal waste landfills (except regulated lab and medical waste) by 2025.*
- *Compost, recycle, or reuse at least 95% of food waste, non-hazardous animal bedding, and construction materials by 2025. To learn more about how Emory aims to do this, visit the Emory Zero Landfill Waste page.*
- *Meet or exceed leading healthcare industry rates of waste reduction/reuse/recycling to 37% by 2025.*

5.7. Does the medical school apply sustainability criteria when making decisions about the campus food and beverage selections (e.g. local sourcing, reduced meat, decreased plastic packaging)?	
3	Yes, the medical school has a**dequate s**ustainability requirements for food and beverages, including meat-free days or no red-meat, and **is engaged** in efforts to increase food and beverage sustainability.
2	There are sustainability guidelines for food and beverages, but they are **insufficient or optional**. The medical school **is engaged** in efforts to increase food and beverage sustainability.
1	There are sustainability guidelines for food and beverages, but they are **insufficient or optional.** The medical school is **not** engaged in efforts to increase food and beverage sustainability.
0	There are **no** sustainability guidelines for food and beverages.

Score explanation: While Emory University's medical school does not have many food offerings, Emory University has several dining halls/cafeterias that are accessible to medical students and governed by the same sustainability efforts as the rest of campus. In regards to these dining halls, Emory University has a Sustainable Food Committee that has a well-defined tracking system for purchasing foods. This system, outlined here, analyzes the sustainability of their food purchasing based on four factors: locality, sustainability, scale, and independent ownership (vs. corporate purchases).

Additionally, The Oxford Organic Farm at Emory University cultivates produce for Oxford Dining, Emory Dining, the Emory Farmers Market, and a community-supported agriculture produce subscription program while providing a hands-on educational experience for students across disciplines.

Emory University also signed an MOU (type of International Agreement) with The Conservation Fund's Working Farms Fund to break down barriers and support next-generation farmers across metro Atlanta while boosting the supply of fresh, local, sustainably grown food for Emory University's campus and hospital communities. Dining currently purchases from over 20 local farmers - this number should increase to at least 70 by 2040 thanks to the Working Farms Funds partnership.

See more current sustainable dining initiatives here.

Moving forward, Emory's Sustainability Vision & Strategic Plan commits to:

- *Expand sustainable food purchases in Emory Dining to 75 percent by 2025.*
- *Expand sustainable and local food purchases in catered events.*
- *Expand sustainable and local food purchases in Emory Healthcare to 25 percent and establish a tracking system to document future gains.*

5.8. Does the medical school or institution apply sustainability criteria when making decisions about supply procurement?	
3	Yes, the medical school has **adequate** sustainability requirements for supply procurement **and** is **engaged** in efforts to increase sustainability of procurement.
2	There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The medical school is **engaged** in efforts to increase sustainability of procurement.
1	There are sustainability guidelines for supply procurement, but they are **insufficient or optional.** The medical school is **not engaged** in efforts to increase sustainability of procurement.
0	There are **no** sustainability guidelines for supply procurement.

Score explanation: Emory University provides comprehensive sustainability criteria for supply procurement provided on campus.

In addition to the purchasing standards mentioned in Section 7 regarding food, a few of the pertinent points to date from the website above are listed below:

- *In 2013, Emory University became a founding member of the Sustainable Purchasing Leadership Council, a non-profit organization whose mission is to support and recognize purchasing leadership that accelerates the transition to a prosperous and sustainable future.*
- *Emory contracts require minimum standards governing employee wages, benefits, and working conditions and provide increased access to minority, disadvantaged, and women-owned vendors.*
- *The purchase of polystyrene products is banned using Emory funds.*
- *Emory's Sustainable Food Guidelines inform food and beverage purchasing by Emory Dining and Emory Healthcare.*
- *Emory uses Life Cycle Cost Analyses to evaluate all energy and water-using products, systems, and building components.*
- *Suppliers of Emory's clothing and garment purchases are all certified by the Fair Labor Association.*
- *All new IT equipment purchased by Emory is EPEAT or Energy Star Certified.*
- *In 2021, Emory signed the "Break Free From Plastic" pledge, which commits the University to take drastic steps to reduce its consumption of single-use plastics. This historic moment resulted from the efforts of the Plastic Free Emory Project, a student organization.*

See Emory's plans for initiatives by 2025 here.

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

Score explanation: Emory University has a Sustainable Events Certification program that guides event planners on sustainable event planning and recognizes planners for their efforts. The certification process is thorough and offers two levels of certification depending on how many criteria are met. This is currently an optional process and incentivized by the opportunity to win a $100 gift card, but Emory intends to have all University events reach Zero Landfill Waste by 2025 and all University functions to be plastic bottle free by 2025.

The Office of Sustainability Initiatives administers the Zero-Waste Ambassador program which educates and trains students, faculty and staff to properly sort waste in accordance with Emory's Waste Policy and sorting systems. Interested community members can register for the program and are trained and deployed to large campus events to assist visitors and other event attendees properly sort their waste to maximize landfill diversion.

Additionally, the Office of Sustainability Initiatives has hosted a Sustainable Events Symposium in partnership with University Events, Michael C. Carlos Museum, Emory Catering, and America to Go. This is an opportunity for faculty, staff, and student event planners to sample sustainable catering while learning about sustainability and wellness. The most recent symposium (2020) featured Dr. Sharon Bergquist who presented the keynote address on Food as Medicine: The Power of Plant-Based Nutrition.

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

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

Score explanation: Emory University has a program called Green Labs at Emory, which is a voluntary program that assists Emory University, Healthcare research, and teaching laboratories to outfit their labs with sustainable practice patterns. The main criteria used by the program to measure sustainability are:

1. *Energy and water efficiency and conservation*
2. *Recycling and waste reduction*
3. *Chemicals*
4. *Procurement*
5. *Engagement*
6. *Safe, healthy, and just environment*
7. *Innovation*

An example of a future goal of Green Labs at Emory is to have at least 95% of non-hazardous animal bedding be composted.

Labs fill out the Green Labs at Emory Checklist and the companion Green Labs at Emory Guidance Document. This data is reported to the Green Labs at Emory Team, which grants them a certification level. Labs can then apply for funding to implement action items or come up with innovative ways to improve the sustainable practices of their lab. In November 2021, Emory Medical Students for Climate

Action applied to certify the School of Medicine Anatomy Lab and received recognition as a Bronze Level Green Lab.

5.11. Does your institution's endowment portfolio investments include fossil-fuel companies?	
4	The institution is **entirely divested** from fossil fuels **and** has made a **commitment to reinvest divested funds** into renewable energy companies or renewable energy campus initiatives.
3	The institution is **entirely divested** from fossil fuels.
2	The institution has **partially divested** from fossil fuel companies **or** has made a **commitment to fully divest**, but **currently** still has fossil fuel investments.
1	The institution has **not divested** from fossil-fuel companies, but faculty and/or students are **conducting organized advocacy** for divestment.
0	Yes, the institution has investments with fossil-fuel companies and there have been **no efforts** to change that.
Score explanation: According to Emory University's 2025 Sustainability Vision Document, "Emory University does not currently hold direct stock or bonds in public companies producing fossil fuels. Emory performs quarterly negative screening of its investment portfolio. Emory holds many investments in sustainable businesses and businesses with exemplary sustainability performance." *More information regarding Emory's fossil-fuel divestment and sustainability investments can be found on the Emory Sustainable Investment website.*	

Section Total (23 out of 32)	**71.9%**

Back to summary page here

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

Grading

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

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

**Within each grade bracket, a score in the top 5% (_5 to_9%), receives a "+", and a score in the bottom 5% (_0-_4%) receives a "--". For example, a percentage score of 78% would be a B+.*

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

Section	Raw Score %	Letter Grade
Planetary Health Curriculum (30%)	(69/72) x 100 = 96%	A+
Interdisciplinary Research (17.5%)	(17/17) x 100 = 100%	A+
Community Outreach and Advocacy (17.5%)	(12/14) x 100 = 85.7%	A
Support for Student-led Planetary Health Initiatives (17.5%)	(13/15) x 100= 86.7%	A
Campus Sustainability (17.5%)	(23/32) x 100 = 71.9%	B
Institutional Grade	**(Ax0.3 + Bx0.175 + Cx0.175 + Dx0.175 + Ex0.175) = 89%**	**A**

Report Card Trends

Section Overview
This graph demonstrates trends in overall and section grades for the years in which Emory School of Medicine has participated in the Planetary Health Report Card initiative.