

**Title of Course / Elective:**  
Climate Change and Human Health

**Date Range (which years M1-M4 and terms Fall, Winter, Summer, which periods it will be offered):** M3 & M4 branch students, January 2021 (period 1)

**CPC Approval Month:** (filled in by CPC Coordinator & DRAFT Watermark will be removed)

<p><b>Course Directors / Asst Directors / Faculty:</b></p> <p>William Peterson, MD</p> <p><i>Student leaders:</i> Emily Johnson Casey Patnode Colby Foster Simona Martin</p>	<p><b>Administrative / Staff Support</b></p> <p><b>Support needs OASIS Access (Y/N):</b> <b>Support needs Amadeus Access (Y/N):</b></p>
<p><b>Select Only One</b></p> <p><input type="checkbox"/> New Required Course</p> <p><input type="checkbox"/> Modified Required Course</p> <p><input checked="" type="checkbox"/> New Elective</p> <p><input type="checkbox"/> Modified Elective</p> <p><b>** If modified please explain below</b></p>	<p><b>IF an Elective</b></p> <p><input type="checkbox"/> 2 week      <input checked="" type="checkbox"/> 4 week</p> <p>Is there a max number of students allowed to register? 24 students per period; no limits M3 vs. M4</p>
<p><b>Does this course/elective require Course Director/Faculty approval, before students can register (Y/N):</b> No</p> <p><b>Was a needs assessment conducted to determine if a similar course/elective already exists (Y/N):</b> A formal needs assessment was conducted in the form of an electronic survey in January and February of 2020. The survey was distributed to M1-M4 medical students and MSTP students. A total of 134 students (34% M1, 14% M2, 18% M3, 30% M4, 3% MSTP) completed the survey which asked about current knowledge, engagement by medical school, and interest in learning about each of the 12 learning objectives (included below). While there was a wide range in students' current knowledge, the majority of students 60.1% reported they were not being engaged at all in any of the 12 learning objectives. When asked about their interest in engaging these topics in the curriculum, the majority, 85.1% expressed that they were interested or very interested in engaging with the learning objectives. The results of this survey indicate that there is a clear learning gap between the current level of student engagement around topics related to climate change and environmental sustainability, and the interest and needs of students in these areas.</p>	

**Course Description & Learning Objectives (map Learning Objectives to [the Institutional Competencies & Objectives](#), (ex. PC-hp, MK-bs, C-ch, etc.) Click here for how to write [Course Objectives](#).**

**MODIFICATION (enter N/A if doesn't apply):** N/A

**Please write one paragraph with a course / elective description here:**

**Course Description:**

This course will explore the relationship between our planet's changing climate and human health. Students will receive introduction to the topic of climate change and other threatened planetary boundaries, an understanding of the current and predicted impact on human health, and opportunities for mitigation and adaptation to these changes. Examples of topics of focus include the impact of air pollution and ground-ozone on respiratory health, the changing distribution of vector and

water-borne infections including Lyme disease and Vibrio-species, the contribution of healthcare systems to global emissions, and opportunities for clinical and public health interventions to minimize human health impact. It will consist of didactic lectures, group discussions, guest speakers, and experiential learning activities. During this course, students will design a project engaging these topics in a healthcare or community setting. The final project will consist of a literature review, development of an actionable proposal and presentation to fellow students at the conclusion of the course. Examples of relevant projects include conducting a quality improvement project to improve sustainability in the hospital or clinic, hosting an educational event for medical students or community members, or developing a campaign for specific local, state or national policy.

**Learning Objectives:**

1. Outline the dependence of human health on global and local ecological systems, which supply essentials such as air, water, and a stable climate **(PR-ra)**
2. Discuss the contribution of human activity and population size to global environmental changes such as climate change, biodiversity, and resource depletion **(MK-sm, PBLI-ca)**
3. Describe the mechanism by which human health is affected by environmental change, for example through changes in disease vectors, exposure to extreme weather, migration, and reduced food security **(MK-bs)**
4. Describe the features of a health-promoting local environment, in community and healthcare settings, to include access to green spaces, clean air, and an active travel infrastructure **(MK-bs)**
5. Explain the concept of environmental justice and the core principles for addressing it **(PR-cd, PR-pv)**
6. Discuss the medical, ethical, legal and economic factors in caring for patients with environmental disease **(PC-ce)**
7. Define environmental sustainability **(C-ch)**
8. Identify ways to improve the environmental sustainability of health systems - in individual practice, in health service management, and the design of care systems **(SBP-os, SBP-ws, CTD-ps)**
9. Identify potential synergies between policies and practices that promote environmental sustainability and those that promote health **(C-pf, CTD-ct)**
10. Take a focused occupational and environmental history **(PC-hp, PC-cr)**
11. Discuss the ethical tensions between allocating resources to individual patients and protecting the environment upon which the health of the wider community depends **(PR-ci)**
12. Evaluate work or school environment for level of sustainability **(MK-dm, PBLI-dp)**

**Grading basis (S/F, or H/HP/P/F):** S/F

**Course Structure (seminar, workshop, training) & Pedagogy (lectures, small group, online, flipped classroom):**

Students will receive education about the relationship between climate change and human health, with focus on opportunities for physicians to engage in solutions at the patient, organization, and systemic levels. Students will participate in didactic modules, simulations, guest lecturers, group discussions, and lead sessions through a flipped classroom design. Students will be required to design a real-world project related to an aspect of the course material and submit a final proposal.

**Student Assessment (quiz, exam, checks for understanding, etc.):**

The course is intended to increase the student's general knowledge and awareness of climate change while providing skills and opportunities for future real-world engagement. Assessment will involve a combination of student attendance and class participation, successful completion of a small group presentation about clinical impact, and submission of a final proposal for a real-world impact project. Student-lead discussions will meet learning objectives 1 & 2. Small group presentations explaining implications on clinical practice in anticipated future specialty will meet learning objectives 3, 4, 6 & 10. The final proposal will meet learning objectives 5, 8, 9 & 12.

**Will this course be approved to meet the SUBI, SUBI/ICU, Emergency Med, RPC, Clinical Elective graduation requirement? Y/N:** No

**Is it designated multidisciplinary and exempt from rule of 4? Y/N:** Yes.

**Please write in the approximate time Distribution, where applicable:**

Outpatient Clinical Care (%): 0

Time Distribution: Inpatient Clinical Care (%): 0  
Time Distribution: Emergency Department Clinical Care (%): 0  
Time Distribution: Service Learning (%): 10  
Time Distribution: Conferences/Lectures/Seminars (%): 40  
Time Distribution: Simulation (%): 20  
Time Distribution: Basic Science Research (%): 0  
Time Distribution: Clinical Research (%): 0  
Time Distribution: Independent Study (%): 20  
Time Distribution: Other (%): 10  
Time Distribution: Other Explanation – Quality Improvement project

**Course / Elective Evaluation Plan (strongly encouraged for all electives; required for required courses):**

At the end of every week, students will be asked to complete an anonymous evaluation of each session. Specifically, for each session, students will be asked about the overall quality of the session, the extent to which the presenter encouraged and provided opportunities for discussion, if they would recommend this course in the future using standard Likert scales, and open space to provide suggestions for improvement. Students will be required to complete an anonymous overall course evaluation in the final week of the course. This survey will use standard questions for medical school curriculum evaluation where students will use Likert scales about their agreement about statements including “I received feedback on my performance”, “I was treated in a respectful manner”, “I would recommend this course to other students” as well as an overall rating of the course, and written feedback about course strengths, areas for improvement and any additional comments. A final debriefing session on the final day of class will be used to facilitate an open discussion about the course strengths, and areas for improvement.

**Highlight which department will be running and managing this course / elective (select one: ANESTH, DERM, EMERGMED, INTMED, MEDADM, NEUROL, OBSTGYN, OPHTH, OTO, PATH, PEDIAT, PSYCHIAT, RADIOL, SURGERY, UROLOGY, Other fill in \_\_\_\_\_):**

Please note ~ For courses that are ***not MEDADM***, department chair approval or designee approval is needed