

654506 Proposing a New Elective Course

Course Name: Sustainability, Medicine, & Health

Course Director: Lucy Hansen, MD **Course Coordinator:** Madelyn Carter

Sponsoring Department: RUUTE

Department Code & Proposed Course Number: MDID 6004

Brief Statement of Rationale: The Rural & Underserved Utah Training Experience (RUUTE) program is excited to expose and bring awareness to medical students about the relationship between sustainability and medicine. The "Sustainability, Medicine, & Health" elective is an opportunity to explore the diverse populations in the State of Utah and the challenges and opportunities that exist in working in green healthcare and the impact of the environment on medicine, specifically when treating populations most impacted by environmental changes. Students in this course will gain a greater awareness about climate change and the environmental conditions that exist in Utah and also the complexity of issues facing healthcare providers and patients in Utah. Students will also be able to learn from the various environmental and healthcare agencies throughout the State of Utah and elsewhere in their quest to keep the environment healthy and safe. Students will be invited to consider incorporating sustainability principles into their future practice and working in green healthcare administration as a potential future career choice. Students will be encouraged to engage in self-reflection and be curious throughout the course as they engage in the material regarding sustainability and its impact on communities and their healthcare needs that they may not be familiar with. This course is open to all medical students.

Type of Elective: Lecture

Number of Credits: 1.0 credit (40 hours worth of work)

Timing & Frequency: January 9, 2023 to March 20, 2023. Video lectures will be available starting Monday morning at 9 AM. The weekly lecture can be viewed at the student's own time (asynchronous learning). The associated reading materials should be completed and the lecture viewed by the following Monday. The first (September 1) will differ from the schedule to accommodate a previous obligation the instructor made.

Prerequisites/Corequisites: No prerequisites are required but the completion or enrollment of MDID 65550- Introduction to Population Health in the Rural Western U.S is recommended

MDID 6004 Sustainability, Medicine, & Health

Credit Hours: 1.0 credit hour

Contact Information

Name	Position	Email
Lucy Hansen, MD	Director	lucy.hansen@hsc.utah.edu
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Course Information

Brief Description of Course

The Rural & Underserved Utah Training Experience (RUUTE) program is excited for medical students to become more aware of the relationship between healthcare and the environment and how it impacts the various communities throughout Utah. The "Sustainability, Medicine, & Health" course will help to illuminate the complexity and diversity of the environment in

Utah, and the challenges and opportunities present in its connection to health and medicine. The course is also designed to inspire future physicians to seek opportunities to improve their environment and align it with their medical career and goals.

The course will also help students: identify strengths, deficiencies, and limits in one's knowledge and expertise as it pertains to the care of populations most impacted by climate change; set learning and improvement goals; and identify and perform learning activities that address one's gaps in knowledge, skills, and/or attitudes.

The medical students who participate in this elective will gain specific insight into healthcare differences within underserved areas and patient populations. Students will gain insight into the realities that many people within these communities face on a daily basis and will also gain an appreciation for what they have and witness the substantial schism between underserved areas compared to areas with more resources.

Upon completion of the elective, students will have developed a broad understanding of the relationship between sustainability and medicine, its health-related issues, challenges, and determinants, and the culture of these communities.

By participating in this elective, medical students will examine their own beliefs about climate change, medicine, and patients that come from a background different from their own and what they are familiar with; including implicit bias. They will become more culturally sensitive to the socioeconomic determinants of health present within the diverse populations that live in Utah and become better future physicians with this new knowledge and insight.

Course Goals

As a result of successfully completing the "Sustainability, Medicine, & Health" elective, students will be able to:

1. Gain an understanding of the challenges and opportunities faced by physicians balancing their clinical and administrative responsibilities while promoting sustainability in their patient population and in the healthcare industry.
2. Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities.
3. Describe how social determinants of health and the environment interface with and impact health and health service delivery.
4. Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health.
5. Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective.

Course Format & Schedule

Timeline: September 1, 2020 to November 2, 2020

Educational and Instructional Modalities

Modality	Percentage
Completion of final research project	30%
Completion of op-ed piece	20%
Participation in online discussion board	10%
Viewing of assigned video lectures	30%
Reading/viewing of assigned online material	10%

Role of the Student in this Course

- Students will view all assigned video lectures.
- Students will write an op-ed piece.
- Students will read the assigned articles and view the online material that coincides with the lecture for the week.
- Students will complete a final project where they take a sustainability topic related to medicine and create an action plan on how to solve the problem.
- Students will contribute to the online learning forum by posting responses to the lectures and videos as well as posting responses to their colleagues posts. Students will post original content each week throughout the course and respond to at least two of their colleagues' posts.
- Students will display an understanding and the ability to integrate concepts, ideas, and information related to the elective by successful completion of the written assignments as well as interacting with their peers on the student discussion board.

Topics in this Course*

- Climate change
- Disaster response and recovery related to climate change
- Environmental health/environmental toxicology
- Outdoor air quality
- Radon/indoor air quality
- Health disparities related to sustainability
- Homelessness and environmental justice
- Food justice
- Green buildings (green hospitals and healthcare purchasing/waste)
- Final research project presentations

*Topics may vary by availability of guest lecturers

Educational and Instructional Modalities for this Course

- Asynchronous weekly lectures uploaded to Canvas. This will be a combination of powerpoint presentations with an audio voiceover as well as video recorded lectures, depending on the lecturer preference.
- Asynchronous readings and video viewing through Canvas
- Peer-to-peer education through online posting in Canvas
- Final in-person class where students present final projects

Alignment of Program Objectives and Course Objectives

Refer to Appendix B to see the alignment between the University of Utah School of Medicine's Program Objectives and the Sustainability, Medicine, & Health Elective Course Objectives.

Required Textbook(s)/Readings

N/A

Additional Resources

Refer to Appendix C for various articles and online content will be posted on a weekly basis to the Canvas platform.

Assessment & Grading

Assessments

Assessment Name	Weight toward Final Grade	Must Pass/Must Complete	Course Goal Assessed	Due Date

Op-Ed Piece	N/A	Must Pass*	<ul style="list-style-type: none"> Gain an understanding of the challenges and opportunities faced by physicians balancing their clinical and administrative responsibilities while promoting sustainability in their patient population and in the healthcare industry. Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities. Describe how social determinants of health and the environment interface with and impact health and health service delivery. Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health. Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective. 	November 2, 2020
Viewing of all guest lecturer videos and reading of articles/videos assigned weekly.	N/A	Must Pass*	<ul style="list-style-type: none"> Gain an understanding of the challenges and opportunities faced by physicians balancing their clinical and administrative responsibilities while promoting sustainability in their patient population and in the healthcare industry. Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities. Describe how social determinants of health and the environment interface with and impact health and health service delivery. Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health. 	Weekly
Final Research Project	N/A	Must Pass*	<ul style="list-style-type: none"> Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities. Describe how social determinants of health and the environment interface with and impact health and health service delivery. Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health. Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective. 	November 2, 2020

Online posting and responses	N/A	Must Pass*	<ul style="list-style-type: none"> Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective. 	Ongoing throughout the elective. The expectation is the student will post at least once each week, with an expectation that the student will post responses to at least 2 colleagues' posts throughout the elective.
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*See Appendix F for Grading Rubric

Grading Criteria

Students who participate and complete all the elective discussions, lectures, and assignments will receive a grade of PASS for the elective.

Grading System

Students will receive a final letter grade of PASS (P) or FAIL (F) for this course:

PASS: A student who successfully completes ALL Must Pass and Must Participate elements for the course will be assigned a grade of PASS.

FAIL: A student who fails to achieve a Pass for each Must Pass element or who fails to participate in all Must Participate elements for the course will be assigned a grade of FAIL.

Student Feedback

Student feedback is an important aspect of curriculum quality improvement. Thus, students are expected to complete all assigned feedback surveys specific to a course by the due date.

Standard Policies

Please refer to the Student Handbook (on the Student Affairs' website) for these policies:

Accommodations

Addressing Sexual Misconduct

Dress Code

Examination and Grading Policies

Grade or Score Appeal

Professionalism, Roles & Responsibilities

Mistreatment

Infectious, Environmental and Bloodborne Pathogen Exposures Policy

Alternate Name and/or Personal Pronoun

Class rosters are provided to the instructor with the student's legal name as well as 'Preferred' first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, we will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise us of any name or pronoun changes (and please update CIS) so we can help create a learning environment in which you, your name, and your pronoun will be respected.

Center for Disability & Access Services

The School of Medicine seeks to provide equal access to its programs, services and activities for all medical students. The Center for Disability and Access (CDA) provides accommodations and support for the educational development of medical students with disabilities. Medical students with a documented disability and students seeking to establish the existence of a disability and to request accommodation are required to meet with the CDA Director for recommended accommodations. The CDA will work closely with eligible students and the Academic Success Program to make arrangements for approved accommodations. The School of Medicine and CDA maintain a collegial, cooperative, and collaborative relationship to ensure compliance with federal and state regulations for students with disabilities.

Steven Baumann EdD, School of Medicine Senior Director of Academic Success Program, serves as the liaison between the School of Medicine and the CDA.

Contact Information:

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University of Utah Center for Disability and Access

Olpin Student Union Building, Room 162 Phone (Voice/TDD): (801) 581-5020

<http://disability.utah.edu>

Appendix A

Course Schedule

All lectures will be available at 9 AM on the date listed.

Time/Date	Topic	Lecturer	Notes
January 9, 2023	Introduction/Climate Change	Lucy Hansen, MD & Andrea Brunelle, PhD	In-person session (TBD if virtual Zoom meeting or not)
January 16, 2023	Disaster Response & Recovery Related to Climate Change	Divya Chandraeskhar, CMP	Online Video
January 23, 2023	Environmental Health & Environmental Toxicology	Utah Physicians for a Healthy Environment Brian Moench, MD	Online Video
January 30,, 2023	Air Quality	Eleanor Divver, MPH	Online video
February 6, 2023	Op-Ed Discussion	Lucy Hansen, MD	Zoom Session
February 13, 2023	Radon & Indoor Air Quality	Eleanor Divver, MPH	Online video
February 20, 2023	Health Disparities Related to Sustainability	Sara Grineski, PhD	Online video
March 6, 2023	Homelessness & Environmental Justice	Jeff Rose PhD	Online Video
March 13, 2023	Food Justice	Adrienne Cachelin PhD	Online Video
March 20, 2023	Green Buildings (Green Hospitals & Healthcare Purchasing/Waste)	Russell Unger, JD (Former CEO of Urban Green)	Online Video
March 27, 2023	Final Research Project Presentation	Lucy Hansen, MD	In-person session (TBD if virtual Zoom meeting or not)

Appendix B

Alignment of Program Objectives and Course Objectives

Program Objective	Course Objective
<p>Patient Care</p> <ul style="list-style-type: none"> Counsel and educate patients and /or their families to empower them to participate in their care and enable shared decision making 	<ul style="list-style-type: none"> Gain an understanding of the challenges and opportunities faced by physicians balancing their clinical and administrative responsibilities while promoting sustainability in their patient population and in the healthcare industry. Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities. Describe how social determinants of health and the environment interface with and impact health and health service delivery. Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health. Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective.
<p>Knowledge for Practice</p> <ul style="list-style-type: none"> Apply established and emerging evidence about lifestyle changes for disease prevention to improve patient health outcomes Apply principles of social-behavioral sciences to provision of patient care, including assessment of the impact of psychosocial and cultural influences on health, disease, care-seeking, care compliance, and / or barriers to and attitudes toward care 	<ul style="list-style-type: none"> Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities. Describe how social determinants of health and the environment interface with and impact health and health service delivery. Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health.
<p>Practice Based Learning and Improvement</p> <ul style="list-style-type: none"> Identify strengths, deficiencies, and limits in one's knowledge and expertise Identify and perform learning activities that address one's gaps in knowledge, skills, and / or attitudes Locate, appraise, and apply evidence from scientific studies related to patients' health problems 	<ul style="list-style-type: none"> Gain an understanding of the challenges and opportunities faced by physicians balancing their clinical and administrative responsibilities while promoting sustainability in their patient population and in the healthcare industry. Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities. Describe how social determinants of health and the environment interface with and impact health and health service delivery.

	<ul style="list-style-type: none"> • Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health. • Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective.
<p>Interpersonal and Communication Skills</p> <ul style="list-style-type: none"> • Communicate effectively with patients, families, peers and /or other team members across a broad range of socioeconomic and cultural backgrounds using strategies that build rapport and promote inclusion and equity • Demonstrate interpersonal and communication skills that result in the effective exchange of information with patients, families, peers and / or other team members 	<ul style="list-style-type: none"> • Describe the unique aspects of sustainability and medicine and compare/contrast to urban/metropolitan (rural potentially) population health, including health disparities. • Describe how social determinants of health and the environment interface with and impact health and health service delivery. • Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective.
<p>Professionalism</p> <ul style="list-style-type: none"> • Demonstrate respect for others in all interactions, including team, classroom and patient interactions, and during conflict resolution, students will treat peers, faculty, staff, patients, and / or patient's families with consideration, compassion, dignity, and respect • Demonstrate a drive for excellence through a lifelong commitment to learning and self-improvement 	<ul style="list-style-type: none"> • Gain an understanding of the challenges and opportunities faced by physicians balancing their clinical and administrative responsibilities while promoting sustainability in their patient population and in the healthcare industry. • Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective.
<p>Systems-Based Practice</p> <ul style="list-style-type: none"> • Incorporate considerations of cost awareness and risk-benefit analysis in patient and / or population-based care 	<ul style="list-style-type: none"> • Gain an understanding of the challenges and opportunities faced by physicians balancing their clinical and administrative responsibilities while promoting sustainability in their patient population and in the healthcare industry. • Describe how social determinants of health and the environment interface with and impact health and health service delivery. • Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health.

	<ul style="list-style-type: none"> • Be familiar with the available resources and data relevant to describing and measuring sustainability efforts and health.
<p>Interprofessional Collaboration and Teamwork</p> <ul style="list-style-type: none"> • Work with other health professionals to establish and maintain a climate of mutual respect, dignity, diversity, ethical integrity, and trust • Provide feedback to enhance team members' learning and performance 	<ul style="list-style-type: none"> • Gain the skill set to be an empathetic, ethical, communicative, and professional healthcare leader. This includes honing the skill of personal reflection, learning from the experiences of other healthcare providers and colleagues, and being able to communicate with colleagues and the public on issues brought up throughout the elective.

Appendix C

Online Learning Material

Lecture: Introduction/Climate Change

Material:

- <https://www.thelancet.com/action/showPdf?pii=S0140-6736%2806%2968933-2>
- <https://www.yaleclimateconnections.org/2019/08/how-climate-change-threatens-public-health/>
- <https://www.sciencedirect-com.ezproxy.lib.utah.edu/science/article/pii/S0749379708006855>
- <https://www.sciencedirect-com.ezproxy.lib.utah.edu/science/article/pii/S0143622810000603>
- [https://www.ted.com/talks/david wallace wells how we could change the planet sclimate future?language=en](https://www.ted.com/talks/david_wallace_wells_how_we_could_change_the_planet_sclimate_future?language=en)

Discussion Board Prompt:

Before this first lecture, what were your thoughts about sustainability and medicine? What do you hope to gain from this course?

Lecture: Disaster Response & Recovery Related to Climate Change

Material:

- <https://journals-sagepub-com.ezproxy.lib.utah.edu/doi/full/10.1177/1948550615590448>

Discussion Board Prompt:

How do you see the role of disaster response & recovery evolving as society responds to climate change?

Lecture: Environmental Health & Environmental Toxicology

Material:

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PM-C4429185/>

Discussion Board Prompt:

What are some of the ways that you see environmental health impacting the population in Utah? What can be done about it?

Lecture: Air Quality

Material:

- <https://www.sltrib.com/news/environment/2018/01/09/utahs-air-quality-is-sickening-even-killing-locals-year-round-new-research-suggests/>
- <https://www.sciencedirect.com/science/article/abs/pii/S0013935120304369?dgcid=author>
- <https://attheu.utah.edu/facultystaff/persistent-inequitable-exposure-to-air-pollution-in-salt-lake-county-schools/>

Discussion Board Prompt:

Air quality is an issue in Utah, what are some ways that you see it impacting different populations in Utah due to societal determinants? What can be done to remedy this inequitable exposure?

Lecture: Radon & Indoor Air Quality

Material:

- <https://www.sciencedirect.com.ezproxy.lib.utah.edu/science/article/pii/S1352231099002721>

Discussion Board Prompt:

In your opinion, what are some realistic ways to improve indoor air quality that the average person can act on? Since radon is more prominent in some geographic areas than others, what are some ways to approach patient care in relation to radon exposure?

Lecture: Food Justice

Material:

- <https://www.sciencedirect.com/science/article/pii/S2210784316300055>

Discussion Board Prompt:

What are some ways that you can promote food justice both personally and professionally?

Lecture: Homelessness & Environmental Justice

Material:

- <http://unequalcities.org/wp-content/uploads/sites/17/2020/01/Goodling-2019-Intersecting-hazards-intersectional-identities-A-baseline-critical-environmental-justice-analysis-of-US-homelessness-EnvPlngg-E-Nature-and-Space.pdf>
- <https://journals.uair.arizona.edu/index.php/JPE/article/view/20779/20371>

Discussion Board Prompt:

How does the intersectionality of homelessness and environmental justice impact healthcare?

Lecture: Health Disparities in Relation to Sustainability

Material:

- <https://www.youtube.com/watch?v=KcMQilxqJaU>
- <https://www.sciencedirect.com/science/article/abs/pii/S0013935120304369?dgcid=author>

Discussion Board Prompt:

What are your main takeaways from learning about health disparities in relation to sustainability?

Lecture: Green Buildings (Green Hospitals & Healthcare Purchasing/Waste)

Material:

- <https://global-factiva-com.ezproxy.lib.utah.edu/ga/default.aspx>
- <https://go-gale-com.ezproxy.lib.utah.edu/ps/i.do?&id=GALE%7CA179134677&v=2.1&u=marriottlibrary&it=r&p=AONE&sw=w>
- <http://web.b.ebscohost.com.ezproxy.lib.utah.edu/ehost/detail/detail?vid=0&sid=b3d52caa-80ac-4429-8035-953188442f2e%40pdc-v-sessmgr02&bdata=JnNpdGU9ZWZwhvc3QtbGl2ZQ%3d%3d#AN=EPTOC53296914&db=mdc>

Discussion Board Prompt:

How do you plan on incorporating green healthcare into your future practice?

Lecture: Final Research Project Presentation

Material: N/A

Discussion Board Prompt:

How have your views of medicine and sustainability changed when looking back at your views at the beginning of the course to now?

Appendix D

Op-Ed Piece Guidelines

An "Opposite the Editorial Page", or "Op-Ed" piece, can have a wide range of creativity and flexibility. It can be personal or exploratory essays, commentary on local events, reflections on cultural trends, environmental issues, determinants of health, and more are welcome. Write about something that you find interesting with a fact-based viewpoint that you believe readers will find worthwhile and is appropriate for your assigned target population. The guidelines below are recommended to be utilized when writing your op-ed piece; however more information and suggestions can be found at <https://commskit.duke.edu/writing-media/writing-effective-op-eds/>.

Here are the guidelines for writing an op-ed piece:

- Limit the article between 750 and 800 words
- Make a single point – well
 - Be satisfied with making a single point clearly and persuasively. If you can't explain your message in a sentence or two, then you're trying to cover too much.
- Put your main point on top
 - You have no more than 10 seconds to hook a busy reader, which means you shouldn't "clear your throat" with a witticism or historical aside. Just get to the point and convince the reader that it's worth his or her valuable time to continue.
- Tell readers why they should care
 - Put yourself in the place of the busy person looking at your article. At the end of every few paragraphs, ask out loud: "So what? Who cares?" You need to answer these questions. Will your suggestions help reduce readers' taxes? Protect them from disease? Make their children happier? Explain why. Appeals to self-interest usually are more effective than abstract punditry.
- Showing is better than discussing
 - That's because we humans remember colorful details better than dry facts. When writing an op-ed article, therefore, look for great examples that will bring your argument to life.
- Embrace your personal voice
 - The best of these examples will come from your own experience. Academics tend to avoid first-person exposition in professional journals, which rarely begin with phrases like "You won't believe what I found when I was working in my lab last month." When it comes to op-eds, however, you should embrace your own voice whenever possible. If you are a physician, describe the plight of one of your patients, and then tell us how this made you feel personally. If you've worked with poor families, tell a story about one of them to help argue your point. In other words, come down from Mt. Olympus and share details that will reveal your humanity. In doing so, your words will ring truer and the reader will care more about what you are saying. If you are a student or someone else without a fancy degree or title, your personal voice becomes even more important.
- Use short sentences and paragraphs
 - Look at some op-ed articles and count the number of words per sentence. You'll probably find the sentences to be quite short. You should use the same style, relying mainly on simple declarative sentences. Cut long paragraphs into two or more shorter ones.
- Avoid jargon
 - If a technical detail is not essential to your argument, don't use it. When in doubt, leave it out. Simple language doesn't mean simple thinking; it means you are being considerate of readers who lack your expertise and are sitting half-awake at their breakfast table or computer screen.
- Acknowledge the other side

- People writing op-ed articles sometimes make the mistake of piling on one reason after another why they're right and their opponents are wrong, if not idiots. They'd probably appear more credible, and almost certainly humbler and more appealing, if they took a moment to acknowledge the ways in which their opponents are right. When you see experienced op-ed authors saying "to be sure," that's what they're doing.
- Make your ending a winner
 - As noted, you need a strong opening paragraph, or "lead," to hook readers. When writing for the op-ed page, it's also important to summarize your argument in a strong final paragraph. That's because many casual readers scan the headline, skim the opening and then read the final paragraph and byline. In fact, one trick many columnists use is to conclude with a phrase or thought that appeared in the opening, thereby closing the circle.
- Relax and have fun
- Offer graphics or other visuals
 - If you have a terrific illustration, photo, video or other asset that might accompany your article, use it.

Appendix E

Final Research Project

Final project description

During this course you will develop a project proposal to address a sustainability challenge at the University hospital or in the community. This project will be an opportunity to gain experience working and synthesizing concepts and ideas learned during the course. The project will be organized around a real-world funding opportunity and you will work to develop your project ideas and potentially work with mentors at the University hospital or the community to research your topic and gather additional information.

Sustainability challenge project proposal categories

- Topics covered during course
 - Climate change
 - Disaster response and recovery related to climate change
 - Environmental health/environmental toxicology
 - Outdoor air quality
 - Radon/indoor air quality
 - Food justice
 - Homelessness and environmental justice
 - Health disparities related to sustainability
 - Green buildings (e.g., green hospitals and healthcare purchasing/waste)
- Other topics to consider
 - Agriculture (e.g., reduction or elimination of pesticides)
 - Information technology (e.g., public health information related environmental decision-making)
 - Water (e.g., water quality, quantity, conservation, availability, and access)
 - Built environment (e.g., environmental and health benefits through innovative green buildings or transportation strategies)
 - Topic of your choice

Project Structure

Your final project should be created and presented from the perspective of a future physician proposing a sustainability project at their place of practice and/or in the community. The scope of this project and your budget reflect what you hope and plan to accomplish as a health care provider and administrator. The project structure should include an introduction, statement of the problem, proposed solution, implementation, budget, personnel, and timeline. You may propose to eventually raise more money from local partners, the administration, and/or grants. Your budget could be used to scope, design, or implement a project. In many cases you will be proposing an alternative or more participatory design process and asking people to consider specific "more sustainable" technologies and/or practices.

Project Presentation Slide Deck Outline:

- Project title
- Introduction

- Statement of Problem
- Proposed solution
- Rationale of Proposed Solution
- Implementation
- Budget
- Personnel
- Timeline
- Strategic Planning for Sustaining Solution
- References

Appendix F

Pass/Fail Rubric

A passing assignment does all of the following:

- Addresses the objectives of the assignment
- Demonstrates knowledge of the subject matter relevant to the assignment
- Reflects accurate understanding of concepts, terminology, and key takeaways
- Develops arguments and/or presents information in a coherent, focused manner
- Includes insightful analysis and reflection
- Integrates appropriate evidence, including examples and experiences, to support assertions and support arguments
- Appropriately cites sources of information where appropriate
- Utilizes clear, accurate spelling and grammar
- Is completed on or by the designated due date

A failing assignment does some or all of the following:

- Fails to address the objectives of the assignment
- Demonstrates weak knowledge of the subject matter relevant to the assignment
- Fails to demonstrate understanding of concepts, terminology, and key takeaways
- Shows incoherent, fragmented development of arguments and/or presentation of information
- Includes little analysis and reflection, relying mainly on summary
- Fails to integrate appropriate evidence, including examples and experiences, to support assertions and support arguments
- Fails to cite sources appropriately where appropriate
- Does not utilize clear, accurate spelling and grammar
- Is not completed on or by the designated due date