

With the widespread presence of environmental health hazards in our communities and in our world, health professionals must be prepared to diagnose, treat and prevent health conditions related to environmental exposures in their patients and communities.

The public expects their health care providers to be prepared to deal with health problems related to environmental health hazards. . .

... but all too often providers are not equipped to respond effectively.

Outside of a few in-falling meteors and out-flying spaceships, the Earth is a closed chemical system in which the reactions that maintain life are fueled by sunlight

During the last 4 billion years, there have been remarkable changes in the chemical milieu at the surface of the Earth, where all life is found. . .

■ Bill Schlesinger (1997)

However, changes in the Earth's chemical characteristics have occurred relatively slowly, with ample time for evolutionary change to keep pace

Times are different now.

- Bill Schlesinger (1997)

With the advent of industrialization and an exponentially increasing population, a single species—the human—is usurping (taking over) an extraordinary fraction of the resources that support all life on this planet. Satellite views of the Earth show broad scale destruction of tropical rainforests, expansion of deserts, and smoggy cities.

The planet is changing rapidly under our inattentive stewardship

- Bill Schlesinger (1997)

The Challenge

- We need to see the Earth as a system of physical, chemical and biological processes, radically interconnected on every scale

- Until the Apollo missions of the late 1960s, Earth was thought of as having limitless resources of land, energy, water, lumber, and ore
- Earth Scientists understood the earth in terms of processes operating within the traditional subdivisions of atmosphere, biosphere, hydrosphere, and solid earth

Need to Take a Holistic Perspective

- What are the primary processes that drive life?
- How are these processes linked?
- How do changes in fluxes in one cycle affect another?
- What do these changes mean for our health and the health of our planet?

Health and the Environment

Earth Sciences 273

Matt Schumacher

September 3, 2014

Course Description

- Understanding the relationship between our environment and our health is a significant challenge for current and future generations
- There is clear evidence that environmental agents play key roles in the development of many common illnesses and conditions
- Most of these environmental agents are the result of human interferences in the natural processes and fluxes of elements within the planetary system
- This course will explore many aspects of this feedback-loop between human health and the planet's health.

Objectives for the Course

- At the end of this course you should be able to explain:
 - the Earth's major processes and fluxes of elements
 - how humans alter these processes and fluxes
 - feedbacks between environmental and human health

Course Overview

- Fundamentals of Environmental Health
- Risk, Risk Assessment and Hazards
- Research Methods
- Geologic processes
- Natural Hazards and their Health Implications
- Natural processes and fluxes of elements
- Human interference with processes and fluxes and Implications for Health

Distribution of Marks

■ Film Summary	(10%)
■ Group Paper	(15%)
■ Group Presentation	(10%)
■ Midterm (Oct. 15)	(25%)
■ Final (December TBD)	(40%)
■ TOTAL	100%

Documentary Summary

- View “**Cosmos: A Spacetime Odyssey – Episode 12: The World Set Free**”
 - Due two weeks from this evening (Sept 17th @7:00pm)
 - To be handed in before the start of class
 - No extensions will be granted!
- The assignment (10%)
 - After watching the Cosmos Episode you will be required to write a three to four page summary answering questions relating to the Greenhouse Effect

The summary:

- Your assignment is to write up a brief, but concise, discussion on the Cosmos episode “The World Set Free”
- Requirements:
 - ½ page synopsis (overview) of the episode (much like an abstract)
 - No more than 4 pages
 - Answers to some questions based on information presented in the documentary
 - Discussion on what is happening to our atmosphere and the potential consequences if actions are not taken to remedy the situation

Your summary should include:

Format:

- No title page necessary
- 12 font
- Double spaced
- Times new Roman
- Double sided (if possible)
- Referenced accordingly

Your summary should include:

Marked out of 25

Introduction

- Brief (~1/2 page) synopsis, include title (2 points)

Answer the Following:

- Why is Venus “scorching hot?” (5 points)
 - Summarize why the surface of Venus is so hot, describe and the name of the process that creates these conditions and include the 3 main factors that create these hot conditions
- How is our atmosphere changing? (5 points)
 - Describe how scientists know the composition of historic atmospheric gas concentrations, how far back scientists have records, the major change going on into today’s atmosphere and the cause of this change
- What is the difference between weather and climate? (5 points)
 - Define what weather is, what climate is and list 3 mentioned variables that, when altered, will change climate

Discussion

- What is the main theme of “The World Set Free?” (5 points)
 - Identify the overall message from this Cosmos episode. Discuss how these changes will impact life on Earth and what can we do to help reverse, or slow down, these changes

Conclusion

- Concluding remarks (2 points)

Style, Grammar and Referencing (1 point)

Seminar Paper

- Write a 10-12 page summary paper on your specific topic.
- Guidelines and a rubric are provided. Please view these to ensure requirements are met.
- ~~An abstract of your presentation will be due the Friday BEFORE you present.~~
- Your paper and ppt will be due by Friday at 5:00pm the week that you present
- Finally, please ensure that the group member responsible for sending it to me has done so
- Any late papers will lose 10% daily. No exceptions!!!
- Please do not ask for an extension as the times you present are clearly outlined.

Seminar Presentation

- 15 minute group presentation (13 minute presentation + 2 minutes for questions)
- All members must participate
- Rubric is provided
- Please see ESCI 273 Moodle page

Questions?



JOHNSON

Cosmos Episode

- Available on Netflix