

Final Project

Earth Science

COURSE OBJECTIVES

Upon successful completion of this course, the student will be able to:

1. Describe the critical tools used to draw conclusions about the physical world
2. Explain how Earth's major components evolved over geologic time
3. Identify the factors and processes that cause Earth's weather and climate patterns
4. Explain how Earth's place in the solar system impacts planetary processes
5. Analyze the role that access to earth's resources plays in the world economy

BACKGROUND INFORMATION

In this project, you will have the chance to study a highly discussed or controversial topic in the field of earth science. Using what you have learned in the course as a foundation, you will conduct research, thoughtfully construct your own position on the issue, and propose a realistic, scientifically-based solution to the issue.

PROJECT INSTRUCTIONS

Your deliverable for this project will be a research paper about a highly discussed topic in earth science (suggested length 6-8 pages). You must cite your sources using in-text citations and format the paper according to APA style guidelines. You must also include a references page. The references page does not count toward the suggested length.

For the project, you will need to complete four main tasks:

1. Choose a debated earth science issue of social or economic consequence

To begin, choose one of the topics related to earth science below. You may wish to do some brief initial research on several of the listed topics to learn more about them and find out which is most interesting to you.

- Atmospheric patterns or constituents (e.g. Santa Ana winds, Chinook winds, ozone, ultraviolet radiation)
- Climatic or weather consequences of greenhouse gases
- Effect of comet, asteroid, or meteoroid impacts on earth
- Global warming (melting of the polar ice caps and views on how to slow or stop global warming)
- Ground and surface water resources (e.g. fresh water access, flooding, desertification)

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- Impact of plastic waste in the ocean (e.g. animal/food chain consequences, human consequences)
- Non-renewable resources (e.g. petroleum, coal, natural gas)
- Ocean circulation patterns and resources (e.g. El Niño or La Niña, tidal energy)
- Renewable or nonrenewable resources (e.g. fossil fuels, mining, rare earth elements)
- Seepage of chemicals into the water supply (e.g. endocrine disruptors, fertilizers)
- Seismology or volcanism
- Waste disposal (e.g. nuclear, industrial, and/or consumer waste)
- Weathering, wasting, or erosion (e.g. landslides, coastal erosion, runoff, farmland erosion)

2. Research various sides of the topic and prepare a report on the science and economics related to the topic

Prepare a report on the scientific and economic issues surrounding the topic you chose. You should research conflicting sides of the issue and fairly discuss the various viewpoints in your report. If the topic does not have conflicting arguments, you should discuss why it is an alarming topic or a developing topic that has a critical impact on communities, states, countries, or the world.

While researching and writing, you should address the following points:

- A. Define the major issue or issues—what is at stake?
- B. Who or what does the issue impact? To what extent?
- C. Provide scientific background on the issue. Discuss any points of controversy or disagreement related to the scientific research regarding the issue. If there is no disagreement around the issue, discuss why the topic is alarming and how it has a critical impact on communities or on a global scale.
- D. Discuss any points of controversy related to the economic or social impact of the issue. Do people outside of the scientific community view the issue in a particular way?
- E. Is the issue you chose closely related to any other earth science issues? How so?
- F. Are there proposed solutions to the issue? What are they?

In your paper, you should identify and cite a minimum of five credible sources integral to understanding your issue. To get started, you can try using some of the following research tools, or you can find your own:

- The university library (accessed through your university homepage)
- Public libraries
- <http://scholar.google.com/>
- <http://www.usgs.gov/science/>

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- <http://nasascience.nasa.gov/earth-science/focus-areas/>
- http://www.skeptic.com/reading_room/
- <http://www.eurekalert.org/bysubject/earthscience.php>
- <http://phys.org/space-news/earth-sciences/>
- <http://www.sciencenews.org/view/interest/id/2362/topic/Earth>

NOTE: You may NOT cite or reference Wikipedia in your final project. Wikipedia is not considered a credible academic source. For more information, please visit this link: http://en.wikipedia.org/wiki/Wikipedia:Researching_with_Wikipedia.

3. Develop your own position

For example, decide whether you are “for” or “against” the issue related to your topic. Or, for topics that do not have a clear “for” or “against” stance, explain what you think about the severity of the issue and the level of its impact. In your own words, indicate which position you hold and develop at least three science-based arguments that support your position.

A science-based argument is one that uses scientific data and thought processes to make a logical claim. Be sure to use the data you researched to support your position.

4. Suggest at least one science-based solution to the issue

Given your position and the data you researched, what solution would you recommend to alleviate or solve the issue you chose? Again, you should be sure to thoroughly support your solution with the scientific facts and data that you discovered in your research as well as what you learned in the course. In your discussion of your solution, be sure to also address what you think the impact of your solution will be.

Your solution should be logical and realistic – in other words, it should be feasible to implement in the real world. For example, if you chose to discuss non-renewable resources, you could propose that companies pay an additional tax to use these resources and that the government impose fines on non-payers. This would encourage companies to find alternative solutions and to be more efficient with their use of resources.

NOTE: Please remember, all borrowed material (including credible sources and the textbook) must be cited and referenced properly in accordance with APA guidelines throughout your project. You should also compile a references page and include it as part of your report. The references page does not count toward the suggested page length of the report.

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PROJECT RESOURCE REQUIREMENTS

- In addition to the requirements noted in the project instructions, your project must incorporate the following retrieved from the NCU ProQuest library:
 - At least one source from a peer reviewed article (at least two for graduate)
 - At least one source from a scholarly website (at least two for graduate)
- Wikipedia is not an acceptable source of information for your project, and will not be credited.
- All resources should be cited following APA standards.

PROJECT SUBMISSION

1. All projects are required to have a cover page with your name, the course name and number must be included with all project submissions.
2. All projects are to be submitted as a single file.
3. Save your document as a PDF file. In Microsoft Word, you can use the Save As option to select PDF as your file format.
4. *If your project requires a video*, you should post the video to a free video hosting site like www.youtube.com, www.photobucket.com, or one of the other free webhosting websites. The following website maintains a list of video hosting sites; <http://www.videohostings.com/>. In the written materials that you submit as part of the assignment, you should include the title of the video and a link for the faculty member to use to grade your submission.
5. Upload the PDF file in your course.
6. Your assignment will not be returned to you so keep a copy for your files.