Environmental Systems and Societies

*Study Guide for Climate Change*

**Terms to know and define:**

* Greenhouse gas (GHG)
* Global warming potential
* Solar insolation
* Infra-red radiation
* Anthropogenic
* Greenhouse gas emissions
* Radiative forcing
* Clathrates
* Carbon sink
* Carbon emissions
* Carbon offset
* Carbon taxes
* Water vapor
* Carbon dioxide (CO2)
* Methane (CH4)
* Chlorofluorocarbons (CFCs)
* Ozone (O3)
* Nitrous Oxides (NOx)
* Clathrates
* Intergovernmental Panel on Climate Change (IPCC)
* Fossil Fuel
* Carbon budget
* Gigatonnes Carbon (Gt C)
* Ice cores
* Albedo effect
* Troposphere
* Stratosphere
* Mesosphere
* Ionosphere
* Atmosphere
* Glacier
* Weather
* Climate
* Bog
* Ocean currents
* Swamp
* Rice Paddy

The easiest way to be prepared for the test concerning these terms is to make flash cards. First learn what the term means, then learn it by using the definition. There are 37 terms, you should be able to define all of them in under two minutes and 30 seconds.

What you should be able to do:

1. Explain what is meant by the greenhouse effect.
2. Discuss why is the greenhouse effect normally of benefit to the Earth and its organisms.
3. List the greenhouse gasses in order of their GWP.
4. Explain the sources of the six greenhouse gasses.
5. Describe the increase in the levels of carbon dioxide, i.e. how much has it increased, when did the increase begin and what are the main causes of the increase in carbon dioxide level.
6. State whether the levels of the other greenhouse gases have increased since 1850 and, if so why?
7. Explain how at least four human activities such as deforestation, burning fossil fuels, rice and cattle farming and use of CFCs add to greenhouse gases (This would be a good place to look at your IA carbon footprint).
8. Discuss four ways in which global emission of greenhouse gases can be reduced (include conservation of energy (including the carbon tax and ideas discussed in class) and the use of alternative energy sources).
9. Discuss what is global warming and how is it related to the greenhouse effect?
10. Why might the following processes occur due to global warming:
    1. Thermal expansion of the oceans,
    2. Melting of the polar ice caps,
    3. The effect of air pollutants (aerosols) in reflecting radiation, thus offsetting the warming trends?
    4. Areas in increased latitudes will have an increase in food production.
    5. More plants than animals will go extinct (include movement and insects in the discussion).
    6. The bleaching of coral reefs.
    7. The acidification of the oceans
    8. Disease in LEDCs will increase.
    9. Asia will experience a reduction in availability of fresh water.
    10. International GDP will go into recession.
11. List possible non-human causes of global warming (and explain why they are likely not the cause when possible).
12. Evaluate the pros and cons of geo-engineering global dimming.
13. Discuss how global warming may affect the planetary distribution of biomes?
14. Discuss what may be the impacts on global agriculture if the distribution of biomes changes around the world.
15. List and evaluate the impacts of 5 international agreements about climate change.
16. Explain James Hansen’s plan for reducing carbon emissions.
17. Discuss how cities may be our best strategy for reducing carbon emissions.
18. Analyze a graph and explain trends in emission data.

Holy Crap I'm Freaking Out!

I will not ask all of this on the test, but I will formulate questions that combine many of these. If you get overwhelmed you should focus on being able to answer the quiz questions, I would expect that to get you at least a C on the test.

How should I study?

*I highly recommend getting a study partner to help you do the items listed below (be sure to get their phone number).*

* You should study the flash cards I described earlier.
* You should randomly compare terms and write out how these terms are related.
* You should study your outline, you made from your notes.
* You should re-watch any videos that you don't understand and re-visit the Prezi.
* You should study your carbon emission reduction project and the notes you took from other projects.
* You should examine your IA over reducing your carbon footprint.
* You should take the objectives listed above, turn them into questions and practice writing answers to those questions.
* You should do some of this before we meet again so our review will be helpful.
* You should come to the review with questions.
* You should e-mail me questions as you study.