

Math 190 Fall 2013 - Final Project

Congratulations - you have been confirmed for the appointment to President Obama's cabinet as Assistant to the President for Energy and Climate Change! Recognized as a leading figure in climate science, having participated in international climate negotiations, and with extensive experience in energy markets, you were chosen with bipartisan support. Now consumers, businesses, congress, the president, and the world is looking to you to lay the foundation for the United States' climate policy before the coming 2015 climate negotiations stipulated in the Durban Platform:

<http://www.theguardian.com/environment/2012/sep/17/international-climate-talks-faq>

The president has charged YOU with the task of developing his platform on climate change adaptation and mitigation for the coming years. You are expected to identify one major policy measure to be implemented for each of the federal, state and local levels of government. For each of the THREE policies you describe, you are expected to address the following questions:

1. What is the cost/benefit of this policy measure?
2. Why will it be effectively implemented at this level of government? How will this compliment or interact with the other levels of government?
3. Who does the policy impact directly and indirectly?
4. Who is likely to support/ oppose this measure? What obstacles do you see in its implementation?
5. How long will this policy stay in effect? Will it need to be adjusted in the future?

Additionally, the president wants to know how these combined measures will allow us to meet our international obligations. You must identify if the combined measures will meet, exceed, or fall short of the goal of implementing the targets in the Kyoto Protocol by 2020. In this regard, you should provide analysis and comparison of the future climate under different scenarios:

1. For a control, assume no international agreement is reached and no new policies are enacted (Modern Predicted Run).
2. If your measures meet the goals of the Kyoto Protocol, assume all nations meet the requirements of the Kyoto Protocol by 2020.
3. If your measures fall short of the goals of the Kyoto Protocol, assume those nations which also do not currently meet the Kyoto Protocol's targets make emission reductions proportional to the United States' reduction under your policy.
4. If your measures exceed the goals of the Kyoto Protocol, assume the other G20 nations make proportional reductions, and all others reach Kyoto Protocol targets.

Your analysis will be expected to address the following questions:

1. Under your policy, will there be a greater than 2C rise in global average temperature by 2100?
2. What is the difference in atmospheric carbon, air temperature, sea surface temperature, and sea level between your policy and the control run at 2100?
3. What can be expected of the climate under your plan at 2100?
4. What costs and opportunities will be posed by changing sea level, and climatic conditions? How does this compare to the control run?

You will present your work directly to the President (me) and the Vice President (a classmate of your choice) in the form of a 7-10 minute slide presentation. You should expect 1-2 minutes of questions once you complete your presentation. The grading rubric is below:

| Components | 0 Points | 1 Point | 2 Points | 3 Points |
|-----------------------|-----------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Local Policy | Did not attempt | Made attempt to address questions, some not answered, or answered incompletely | All questions are answered with references to figures and claims provided | Same as left, but student raises original questions, suggests future directions of inquiry, and/or provides case evidence, etc... |
| State Policy | Did not attempt | Made attempt to address questions, some not answered, or answered incompletely | All questions are answered with references to figures and claims provided | Same as left, but student raises original questions, suggests future directions of inquiry, and/or provides case evidence, etc... |
| Federal Policy | Did not attempt | Made attempt to address questions, some not answered, or answered incompletely | All questions are answered with references to figures and claims provided | Same as left, student raises original questions, suggests future directions of inquiry, and/or provides case evidence, etc... |
| International | Did not attempt | Made attempt to | All questions | Same as left, |

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|-----------------------------------------------|------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| | | address questions, some not answered, or answered incompletely | are answered with references to figures and claims provided | but student raises original questions, suggests future directions of inquiry, and/or provides case evidence, etc... |
| Visual Aides | Did not attempt | Student gave slide presentation | Use of charts, graphs, maps, etc... to emphasize points, and enhance presentation | Same as left, additionally used EdGCM and/or other software to create original visualizations of data |
| Argument, Organization, and Creativity | Unorganized, hard to follow presentation | Presentation is effectively organized and communicated | Well argued, conclusion ties pieces together, organization facilitates understanding | Same as left, presentation organization is creative and original, use of costume or role play to get in character |
| | | | Total Points: | /15 |

(Yes, you can get more than 100%)

Presentations will be given on the last day of class and during the scheduled final exam period; there will be no final exam. Pick a vice president that you can act as vice president for - familiarity with each other's projects will help you ask good questions, and it will help the flow of the presentation days.