Instructions for Writing Research Paper

Topic proposal statement due in D2L assignment folder by midnight January 30 (25 pts)

Complete First draft due in D2L Discussion "Peer Review Forum" by midnight February 22 (25 pts)

Peer reviews of two first drafts due by midnight March 1 (50 pts)

Final, printed version of paper due in class on March 22. You are also required to upload a copy of the same paper to a D2L assignment folder (150 pts)

The topic for the research paper needs to be generally related to the issues of possible climate changes caused by human emissions of greenhouse gases and/or policies and methods for reducing greenhouse gas emissions. Two of the more popular policy ideas are carbon cap and trade and carbon tax, though others have been proposed. You are expected to research this issue and select a focused, debatable topic (or topic question) within this general theme as the topic for your paper. In the paper you are expected to include arguments, with references, on both sides of your focused question or topic, not just the side you may agree with.

In past semesters the biggest problem with student papers has been failure to follow or understand the directions for the content of the paper, so I want to state it clearly. The type of paper you are expected to write is what I would call a "discussion-type" paper. However, if you do a web search for discussion paper, you will find a variety of definitions. These two links describe the type of paper that I expect along with some writing tips and suggestions, How to Write a Discussion Essay and How to Write a Good Discussion Essay. You must select a topic that fits under the general themes stated above and is debatable. A debatable topic is one in which valid arguments can be presented on both sides. The main purpose of this paper is to learn about and discuss arguments on both sides of the topic with supporting references. You are informing the reader of both sides without your opinion. This is not a persuasive paper in which you are trying to convince the reader to your point of view. You are asked to briefly state your opinion in the conclusion, but that is not the focus of this paper.

Selecting a focused topic of interest to you is perhaps the most important aspect of writing this paper. The specific topic of your paper needs to be narrow as the general theme posed above is much too broad. For example consider this broad general topic question: Has President Obama been a good president? Focused, debatable topics under this theme could be: Have President Obama's economic policies been successful? Have President Obama's foreign policies been successful? Has President Obama helped the nation's poor? Has President Obama effectively dealt with the immigration issue? Has President Obama done a good job uniting the country? Has the Obama administration negotiated a good deal with Iran? Each of these focused issues has two clear sides to debate. With research you could find references supporting each side of those questions, e.g., some claiming that the president's economic policies have worked, while others claiming that they have not.

Examples of possible topics for this paper are provided near the end of this document, but many other topics beside those listed are acceptable. Generally, almost any related topic is acceptable as long as it is focused and has two clear sides to debate or argue. This is purely a research paper based on out of class material. We will not cover the topic of possible human caused climate change until after the paper is due. You may, of course, contact Dr. Ward with any questions you have as you are researching for your paper. If you are not at all familiar with carbon cap and trade or emissions trading schemes in general, then I suggest that you begin your research by reading about carbon cap and trade and the reasons why some people feel that a policy to reduce greenhouse gas emissions is necessary. Easy-to-understand summaries are provided in What is emissions trading? and The Basic Design Elements of Cap and Trade Systems. Since this is a highly controversial subject, there are many biased articles out there, so I suggest that you read multiple descriptions of carbon cap and trade. After a little

background reading, you should have no trouble selecting a suitable topic that you can easily understand.

Background

Many, but certainly not all, people believe that human-caused emissions of greenhouse gases into the atmosphere will result in significant global warming and potentially catastrophic climate changes. Thus, many believe that humans must severely reduce or eliminate emissions of greenhouse gases, especially carbon dioxide. To address this potential environmental problem, many countries and local regions within countries, have implemented policies to reduce emissions, see State & Trends Report Charts Global Growth of Carbon Pricing. The United States has not enacted a legally binding national policy to reduce emissions. On June 26, 2009, the US House of Representatives passed a Carbon Cap and Trade Bill by a slim 219 - 212 vote. However, the US Senate put off a vote on Carbon Cap and Trade, most likely to avoid such a controversial issue, and it never became law. Recently, in December 2015 at the United Nations Climate Change Conference in Paris, 178 nations, including the United States, agreed to nationally determined pledges to reduce greenhouse gas emissions over time. US Secretary of State John Kerry signed the agreement. However, the deal is not legally binding in that the emission reduction targets submitted by each country are goals and not internationally punishable. According the US Constitution, international treaties with legally binding commitments must be ratified by congress, and it is highly unlikely that the current congress would even vote on the agreement, let alone approve it. Even if President Obama ratifies the agreement by executive order before leaving office, Donald Trump would be able to rescind the US agreement through another executive order. The closeness of the House vote on carbon cap and trade in 2009 and the inability of the Obama administration to gain congressional approval on the Paris agreement shows how divided the US is on this issue. The debate over a national carbon cap and trade policy has been out of the spotlight recently because of the struggling economy, but it will likely resurface. Meanwhile several state and regional governing authorities have passed and enacted carbon emission reduction policies within the United States.

The June 2009 Carbon Cap and Trade legislation would have required the United States to severely reduce its emissions of carbon dioxide over the next four decades to a level 83% below what the US emitted in the year 2005, while the at the Paris conference, the US pledged to reduce emissions to 28% below 2005 levels by the year 2025. Of course those reductions would be great if there were no costs involved. However, there is little doubt that this would increase the cost of energy. Those in favor of Cap and Trade or some other carbon emission reduction legislation believe action must be taken now to avoid or at least reduce the potential harm from human-caused global warming and climate change that will occur if we do not reduce carbon dioxide emissions. The basic environmental concern related to human emissions of greenhouse gases is described simply in What is the Greenhouse Effect? Many of those against Carbon Cap and Trade either do not think emission controls are necessary at all (not worried about potential human-caused climate change) or that Cap and Trade is too expensive to justify against the possible benefits.

This issue is obviously relevant to all of us. It is important to learn about Carbon Cap and Trade or similar legislation and personally decide whether or not it is a good plan. Armed with this understanding, we can then discuss our feelings on this issue with our elected representatives and other concerned citizens.

The Assignment / Expected Content

Your assignment is to come up with an acceptable debatable topic or question within the general theme, research both sides of your topic, and write a short discussion-type paper. You should aim for a paper length equivalent to 4-6 double-spaced pages. For 12 point font and one inch margins, this translates into a word count of 1000 to 1500 words. Your paper does not need to be a strongly technical or scientific paper, so chose a topic that you can easily understand. However keep in mind, this is a research paper, meaning that you are expected to research (through reading and study) the

specific issue you write about. If you are comfortable writing a more technical paper, then feel free to do that. All are expected to follow the instructions for the content of the paper described below.

The paper should consist of three main sections: an introduction, body, and conclusion. The individual sections should not be labeled separately, but rather incorporated into a single, coherent paper. In the introduction you are expected to clearly and succinctly explain the background, which should at least address: why carbon dioxide and other greenhouse gases are increasing, why this is concerning to many people, and that in response to these concerns many government entities around the world have enacted legislation to reduce their emissions. In the introduction you should introduce your specific debatable topic (i.e., the issue or questions that you are going to discuss/debate in the body) and describe how it fits into the larger theme. The introduction should not be longer than one or two paragraphs.

In the body of the paper, you will focus on the specific debatable issue or question that you stated in the introduction and discuss it in detail. You are expected to present arguments supporting both sides of the issue or question that you identify, not just the side you may agree with. You are learning about and informing the reader about both sides of the issue or question. This is the section of the paper where you will need to incorporate outside research into your paper. You will need to cite reference material where required. **A partial list of possible, specific issues is provided below. The list is only a sample of potential topics. There are many other debatable issues or questions that fit within the general theme.** While the body must contain arguments on both sides of your issue of question, you can decide how to present the information. Each paragraph can be a point/counterpoint format comparing the relative pros and cons of each side or you can write several paragraphs supporting one side followed by several paragraphs supporting the other side. ***You are required to have at least 4 in-text citations in the body of your paper, with at least two on each side of the topic question or debatable issue.***

Finally, in the conclusion, you should briefly summarize the background issue and the main points you presented in the body. You should also state your opinion on which side you stand with regard to your debatable issue. Just briefly state your reasons. You are not expected to make a persuasive argument. The largest part of the paper is the body where you provide arguments on both sides of your specific debatable topic. The conclusion should not be longer than one or two paragraphs.

In doing your research, you may come across papers that are highly technical and difficult to understand. You do not need to include this material in your paper. You should be able to find plenty of understandable reference material. A simple web search will find thousands of articles and links concerning the potential impacts of increased greenhouse gases and proposed emission reduction strategies such as carbon cap and trade. **In order to find specific information for your topic, it is helpful to do refined web searches. For example, instead of searching for "Cap and Trade" which is vague, search for something like "Carbon cap trade economic benefits."** You may use all internet-accessible references in this paper if you like; however, consider using printed reference material as well. Something that you will have to consider while doing research for your paper, especially for internet-only articles, is that the author of an article may be biased. In trying to push a personal agenda, some authors will misrepresent supporting and refuting evidence. You should be aware of this possibility when doing your research and make sure to consult multiple sources.

Requirements and Assessment

Your paper should be composed of a title, an introduction, a body, and a conclusion as described above. The individual sections should not be labeled separately, but rather incorporated into a single, coherent paper. After the paper text, there should be a labeled bibliography.

The paper should conform to the following requirements:

- Paper should have a title centered above the first line of text.
- 4 - 6 pages of text, double-spaced, 12 point font, excluding graphs or charts and bibliography. A suggested word count would be 1000 to 1500 words, though word count will not be used in assessing your paper unless it is shorter than 1000 words or significantly longer than 1500

words. You are free to include any graphs, tables, or figures that you consider necessary in your paper. These do not count against the overall page limit.

- Bibliography or list of references is required after the text of the paper. The bibliography does not count against the page limit. **Given that this is a research paper, you must have at least 4 references listed in your bibliography. You MUST use in-text citations to specific references in your bibliography where required.** For the most part, citations to references should not be necessary in the introductory paragraph since that information would be considered common knowledge, unless, of course, you cite data or statistics. You absolutely need citations to reference material in the body of the paper where you will be incorporating data and ideas of others. You are required to have at least two in-text citations to reference material in your bibliography corresponding to each side of your debatable issue (4 total). There are no strict formatting rules for in-line citations or the bibliography, however, you MUST reference where required and the reader should be able to easily locate the material listed in the bibliography. Thus, while in-line citations and a bibliography are required, no specific style is required. If you need guidance on proper use of citations and the bibliography, I suggest that you refer to Research and Citation Resources from the University of Purdue's Online Writing Lab and use either the MLA or APA style formats, which are described in separate links.
- At least four in-text citations that specifically address arguments on both sides of your topic are required in the body section of the paper. These citations will be judged on the effective use of information. The cited reference material must be relevant to the main body argument. Note that not all citations in your paper need to be related to the main body topic and you may have more than four total in-text citations throughout the paper. In fact you may need citations for some background material that is not related to your body argument. However, four in-text citations from the body section will be judged on effective use of information, which means that the reference material specifically addresses one or more sides of your main body arguments. There can be citations to the ideas of others, which support one side of the debate or issue. There can be citations to data or information that support arguments on one side of the debate or issue. The use of long, direct quotations is discouraged, especially if the information can be easily presented in your own works.
- Is the paper well written and easy to understand? *Please keep it simple. Do not try to make it sound "technical" or "academic." You should not select a topic or try to write about something that you do not understand.*
- Did you clearly describe and discuss a single debatable issue in more detail? Are both sides of the specific issue clearly presented? *Important here that you do not mix together* multiple debatable issues. You should focus on one specific question or issue and discuss both sides *of that issue.*
- No grammatical or spelling errors. Besides using a spell checker, it is a good idea to have others read over your paper before you turn it in.
- Overall, is the paper well written and laid out?
- You are not graded on the length of your paper unless it is shorter than 4 pages or significantly longer than 6 pages. Don't feel like you must write 6 pages to get a good grade. It is more important that you write your paper well. Don't unnecessarily repeat yourself to fill space.

Notes on Plagiarism

- Papers will be run through turnitin.com, so you will not get away with copying from the works of others without proper reference
- You must give proper reference to information sources using a bibliography and in-text citations. Taking information or ideas from reference material without proper citation will be dealt with severely. Note that it is not enough to list the source material in the bibliography

without an in-text citation where needed. Even worse would be taking information or ideas from sources that are not even listed in your bibliography.

- You must use your own words unless you are directly quoting from a reference and use quotation marks. Copying phrases directly from another work without quotation marks and proper citation will be dealt with severely. The use of long direct quotations is discouraged if the information can be easily presented in your own words.
- Please refer to the "Student Code of Integrity" section in the syllabus. For cases of severe plagiarism, no credit will be awarded for the paper and the instructor may consult with the Dean of Students for disciplinary actions.

Grading
The total value for all components of this assignment is 250 points.

Item	Point Value
Topic Proposal Statement (due by January 30)	25
Submit complete first draft to Peer Review Forum by due date (February 22)	25
Post thoughtful peer reviews of two first drafts by due date (March 1)	50
Grade for final draft of paper (due by March 22)	150
Total	**250**

Research Paper Topic assignment
Due by end of the day on Monday, January 30, 2017. Submit your topic statement to the D2L assignment, "Research Paper Topic." You can submit any time before the due date to receive feedback sooner.

At a minimum, you are expected to clearly state the topic question or debatable issue that you intend to write about. It is suggested that you also include clear statements of at least two possible ideas and/or supporting references for both sides of the issue or question. For some topics it is helpful to try to pose a question. A draft outline of your paper would be best, but is not required. A preliminary list of references that you have found can be included as well. The purposes of the assignment are to make sure that you have selected a suitable topic and to make sure that you begin working on the paper sooner rather than later. Dr. Ward will reply with comments and suggestions about your topic. **You are not committed to the topic you submit with this assignment. You are free to change the topic before writing your paper if you wish, however, the topic must be suitable for the paper.**

If your topic statement is unacceptable, you will be given one week to resubmit your topic statement for credit.

Submitting the First Draft
Due by the end of the day on Wednesday, February 22, 2017. Submit/upload your first draft to the Discussion called "Peer Review Forum" as a new thread. Although it is called the first draft, you are expected to submit a complete paper that contains all the required content specified above, which includes 4 to 6 pages of text and a bibliography. **The first draft must be submitted by the due date to receive any credit. Points will be deducted for draft submissions that are incomplete.**

Peer Reviews of Two First Drafts
Each student is required to peer review the first drafts of two other students (not your own). These are due by the end of the day on Wednesday, March 1. The reviews should be posted as replies to the first draft threads of two students. *Only two reviews are allowed for each draft. You need to reply to drafts that do not already have two reviews posted.* Instructions for peer review are given in the Peer Review Forum instructions. There are 6 questions to answer in each peer review. Please make thorough reviews. The purpose of the peer review is to help each other improve the final draft of the paper. The

reviews will not be used to deduct points from the author. Generally all points will be awarded as long as you do thoughtful reviews that demonstrate you read the papers carefully.

Submitting your final research paper for grading
Due by the end of day on Wednesday, March 22, 2017. Submit to D2L assignment folder named "Research Paper – Final Draft." You may submit your paper any time prior to the due date. The grading rubric for the final draft of the research paper is shown in a separate document under the research paper instructions, which is located in the course content section. 20 Points are awarded for submitting the final draft on time. The remaining 130 points are based on the paper content.

Information on Possible Topics

Selecting a focused topic of interest to you is perhaps the most important aspect of writing this paper. If we were to make lists of all the pros and cons for enacting an emissions reduction policy like carbon cap and trade, the lists would be tremendous. There are far too many issues to consider within one short paper. A list of some possible focused issues is given below. *You do not have to choose one of the items listed below as there are many other possibilities*. You can also modify one of the examples below to fit your interests. Just about any focused, debatable topic related to emission control policies or the potential environmental impacts of greenhouse gas emissions is acceptable. You will need to do some research to select your topic. You are expected to find reference material for both sides of the issue and include arguments from the reference material in your paper. In other words, do not read one of the issues below and start writing an opinion essay without reading reference material. You are expected to use in-line citations in the body of your paper to references in your bibliography. **For this paper you are expected to write about both sides of a focused issue with supporting references, not just the side you may agree with. The purpose of the paper is more to inform the reader about both sides of an issue rather than to sway the reader toward your point of view.**

In many cases it may be helpful to try to pose a question concerning the specific debatable issue you are going to write about, e.g., "Should the United States enact aggressive reductions in carbon emissions without worrying about what the rest of the world does or should we only do it if the rest of the world agrees to similar aggressive reductions?" You may want to state one side of a potential topic question, perhaps based on a position that you currently hold, and then think about the counterarguments to that point. For example many say "We should not enact carbon cap and trade because it would be bad for the economy." However, others make counterarguments like "the expansion of green technologies will be good for the economy." As another example, many argue that "We should enact carbon cap and trade to avoid catastrophic climate changes," but there are counterarguments such as "Increases in CO_2 will not result in harmful climate change." The reason I want you to focus on one specific issue is that the question of whether or not the US should enact carbon dioxide regulations, and if so which particular policy, is somewhat complex in that there are too many individual concerns to try to tackle all of them. Rather than just listing or brushing over all the issues you can find, I want you to research one specific aspect that hopefully you find interesting. **Please refrain from mixing issues. For example, arguing that Cap and Trade should not be enacted because it is bad for the economy, then countering with Cap and Trade should be done for environmental reasons, would be mixing issues.** A counterargument to the economics issue would be that Cap and Trade would benefit the economy or at least not be that bad for the economy, while a counterargument for the environmental issue would be that human emissions of carbon dioxide are not going to cause harmful climate changes. You can choose a debatable issue about the economics, politics, science, or whatever interests you. Again many other issues beside the examples given below could be discussed in your paper. Feel free to write about an issue not listed. You may also consult with Dr. Ward about the suitability of a topic. In general, given the short length of this paper, the more focused the issue, the better the paper.

A partial list of possible topics is given below. For most of the topics listed, it would be best to focus on just a few point-counterpoint arguments, and not try to cover all possible angles. In all cases you may substitute another emission control policy in place of carbon cap and trade, such as a carbon tax. You may also come up with different arguments for and against each of the example issues provided.

1. Taking for granted that we must reduce emissions of carbon dioxide, which system will work better, a carbon cap and trade system or a straight carbon tax in which each ton of carbon emissions is taxed? You can discuss this question generally or specifically for the US, i.e., which system would work best for the US, carbon tax or carbon cap and trade?

   If you select this topic, make sure to present arguments on both sides of the topic, (1) arguments for carbon cap and trade over carbon tax and (2) arguments for carbon tax over carbon cap and trade. Focus on the relative pros and cons of each system rather than just listing a bunch of pros and cons for cap and trade, followed by a list of pros and cons for carbon tax as several pros and cons are common to both systems. Focus on arguments that support one side over the other. For example, both systems should act to reduce carbon emissions, but which will do it better? Both systems will likely raise prices, but which will have a smaller impact? The question as to which system will be more effective can be addressed with respect to several considerations. Examples include, which system will be best (or least harmful) to the economy? Which system will work best to reduce emissions? Which system will be easier to implement and enforce? Which system will the public favor or accept? Other aspects between the systems can also be compared and discussed.

2. Should the United States enact policy to aggressively cut carbon emissions, such as carbon cap and trade, or should we only do it if the rest of the world agrees to similar aggressive reductions? While the US certainly would not be the first country to enact a national policy, as many countries have already enacted policies, many believe current policies do not go nearly far enough to make a significant difference with regard to future climate change. The question here is whether or not the US should be the leader in making huge cuts in carbon emissions that are much beyond what other countries have so far done and perhaps even more aggressive than the pledged reductions made in the Paris Agreement. No matter how much the US cuts, though, there will still be the issue that unless other countries join, the effect on future global emissions and climate change may be small. The reason for the "aggressive" qualifier is to try to avoid the simple answer that the US should do something to reduce emissions, but not too aggressive that it will have large impacts on say the economy. That is basically what we are doing now. The US has been slowly reducing emissions since about 2007 even without a national policy like carbon cap and trade. Many environmentalists argue that these small cuts in emissions are not nearly enough to avoid harmful climate changes.

   Example arguments against. Cap and Trade in the United States will not be very effective in reducing worldwide CO_2 emissions unless all countries participate, since many energy intensive industries will simply move to a country that does not have a cap and trade policy, particularly China and India. If this happens, the U.S. economy is hurt, and there is no net reduction in worldwide CO_2 emissions. Even if the US completely eliminated emissions, the predicted effect (based on climate model projections) on global average temperature would be less than a few tenths of a degree Celsius by the end of this century. Some say all this effort and cost increase is not worth the small impact on global average temperatures. The reductions in greenhouse gas emissions that some say are required to significantly slow down or stop global warming is more than the US and the rest of the world can or will do. Currently, the largest increases in global emissions are coming from developing countries. Some argue that the decrease in US emissions would be more than made up for by increases in emissions from the developing world.

   Example arguments for. The US should make aggressive cuts in greenhouse gas emissions regardless of what the rest of the world decides either because it is the right thing to do or

simply to take the lead and later worry about convincing other countries to enact a similar aggressive reductions in emissions. Acting first will force the United States to be a leader in alternative energy, giving us a possible advantage in the future. In the long run, it may even benefit the economy. While US action alone may not have a huge effect on global climate change, it is an important first step for us and important in getting the rest of the world on board with us, i.e., lead by example. It is important to get serious toward aggressively reducing carbon emissions to avoid catastrophic climate change.

3. Can the government fairly and effectively administer a carbon cap and trade system? You may substitute another proposed carbon emission reduction policy for carbon cap and trade.

   Example arguments against. A government run cap and trade system will not work well because of bureaucratic waste, fraud, and corruption. This is common in many government programs. Keep in mind that the government sets the limits and the penalties for non-compliance, which can be influenced by lobbying and special interest groups. A Cap and Trade system would necessarily require vast new bureaucracies to monitor emissions and enforce rules. It is then common for companies to employ people to come up with innovative ways to "beat" or "scam" or "profit from" the system, rather than using innovation to become more energy efficient. Some cynics would say that the reason some governmental officials want to pass carbon cap and trade is not about environmental concerns, but rather as a means of gaining revenue, power, and control. This also true of for some companies and individuals who are poised to profit from new regulations, e.g., speculators in carbon emission credits, consultants that advise on how to exploit governmental regulations, and the brokers of the new carbon markets (the equivalent of Wall Street brokers who profit on all stock trades). The concern here is the transfer of wealth to entities that in essence produce nothing. It is also conceivable that the corruption would be so great that the actual emission reduction would be far less than expected (or promised), but still be quite costly.

   Example arguments for. The government is the only entity that can administer a cap and trade program. Not enough companies will reduce emissions voluntarily. We will just have to be watchful for fraud. Perhaps ideas could be presented on how to combat fraud and waste that are common with government programs. Besides Cap and Trade works within free markets and successful companies will be rewarded for coming up with innovative ways to reduce carbon emissions.

4. Economics of carbon cap and trade (or another proposed system)

   This is always a popular topic. Consider writing to a question like, "Should the US enact a carbon cap and trade policy after considering it possible effects on the economy?" There are so many possible angles to argue that could be classified as economic arguments that you need to be careful to focus and not just brush over all of them.

   Example arguments against. A cap and trade policy will raise the price (possibly by a large amount) of almost everything since almost everything we buy or do requires energy. This would likely require many to change their lifestyles to adapt. The increased costs of energy and goods will most hurt the poor who simply cannot afford any increase in cost of living and therefore cap and trade should not be done. Beside, given the struggling economy, now is not the time to implement a new government program that will raise costs.

   Example arguments for. There are many who say carbon cap and trade is a good economic system because it works within our market based economy. There is an economic incentive for companies to reduce emissions (less permits required or can sell extra permits). One can also argue that this increases the economic incentives to develop alternative energy or at least reduce waste. The development of alternative energy could in itself spur economic growth. Some say that even though costs will go up, they will not go up as much as predicted because the free market will find innovative ways to reduce costs and thus the benefits outweigh the slight economic costs. Some proposals for a US cap and trade policy have provisions for using some of the revenue to help the poor deal with higher energy costs. Some argue that we should

pay for the environmental damages related to our actions that produce greenhouse gases and that these costs should be paid by the users of the energy.

5. Will the 2015 Paris Climate Agreement be effective in significantly reducing future greenhouse gas emissions?

   Example arguments for. The fact that most countries signed the agreement is evidence that world governments recognize the importance of reducing emissions and will be committed to do so. Many of the pledges to reduce emissions made by individual countries are significant and ambitious. The agreement also encourages rich, developed countries to contribute financial support to poorer, developing countries.

   Example arguments against. The pledges made by individual countries are voluntary and not legally binding. In addition some of the promises are for reductions after 2020 and beyond and will not take effect immediately. There are questions about whether or not the general public supports the agreement signed by their government negotiators. Political leadership will change before future emission reduction targets are met and new politicians may not support the agreement. For example, the future US commitment likely depends on November's election.

6. What are the political chances that a carbon cap and trade policy (or just an emission control policy in general) will be enacted in the US?

   Provide arguments of how a national emission reduction policy, such as carbon cap and trade, can be passed into law on one side, while on the other side provide arguments for why it will not be passed into law. You can base your arguments on the actions and thoughts of the president and lawmakers. You can consider different time frames … what may happen during Donald Trump's presidency? Is there a better chance after Trump leaves office? Here you can look at Democrats and Republicans (both party platform and powerful individuals) and how things do or do not get done in Washington with regard to the possibility of carbon cap and trade legislation becoming law in both the short and long term.

7. Should a national emissions control policy, such as carbon cap and trade, be implemented based on the science or our current understanding of the possibility that human emissions of carbon dioxide have caused or may cause significant and catastrophic climate change? A related question is will human emissions of greenhouse gases lead to harmful climate changes in the future?

   Example arguments against. There is so much that we do not understand about the Earth's climate and possible human caused climate change due to adding carbon dioxide that we should not act now. We should wait until we know for sure that our actions are causing or will cause future environmental disasters. The Earth's surface temperature has always gone through natural cycles of warm and cold periods, which can be provided as evidence that current changes in temperature (with increased CO_2 in the atmosphere) look just like past natural changes in temperature and thus increased CO_2 is not responsible for recent climate changes. While most climate models predict significant climate changes with increasing greenhouse gases, many argue that the models are unreliable for predicting future climate change and should not be used as a basis for making policy decisions about greenhouse gas emissions.

   Example arguments for. We know enough now that action is immediately necessary. Or one can argue that since there is much we do not understand, why take the risk of continuing to add more carbon dioxide? Climate models indicate the climate is very sensitive to carbon dioxide increases. Some argue that the recent warming period looks different than past natural warming periods in Earth's history.

   There are many who don't think human emission of carbon dioxide have caused or will cause much if any climate change, while others are convinced that we have already gone past the point of no return and catastrophic climate change in inevitable. This in itself is a huge debate … entire books are written on this subject alone. I expect that for some of you this topic will be too difficult to understand well enough to write about. There are many arguments for

significant global warming and climate change due to human emissions of CO_2 and many arguments against increased CO_2 being a huge factor in climate change. If you choose this topic, please be careful to keep your arguments focused to a particular issue within this debate. For example, you could focus on possible ocean acidification and whether or not carbon emission reductions are necessary to protect marine life. Another example would be to focus on possible increases in severe weather events instead of just changes in global average temperature, e.g., "Do we need to reduce greenhouse gas emissions to avoid increases in severe weather events?" You can also focus on the reliability of climate model predictions.

8. Do the potential benefits of increased carbon dioxide in the atmosphere outweigh the risks?
   The risks associated with increasing carbon dioxide are potential catastrophic climate changes, which include significant global warming, increasing severe weather, rapid sea level rise, loss of biodiversity, extinction of species, and many others. On the other side, there is increasing literature about the possible benefits of more carbon dioxide in the atmosphere and warming temperatures. A web search of "benefits higher carbon dioxide" reveals many articles. A common argument is that most plants benefit from higher carbon dioxide concentrations in the atmosphere. We also know that atmospheric carbon dioxide was much higher millions of years ago during a time when many modern plants were evolving and thriving. Many other potentially positive benefits of increased carbon dioxide have also been written about.

9. Should carbon cap and trade be passed because it will force us to transition to use more alternative fuels? You can substitute another emissions control policy for carbon cap and trade.
   Example arguments against. Some people think that all we need to do is spend some money and get serious about using renewable energy (like wind and solar) to replace our existing fossil fuel use. However, current solar and wind energy technologies are not capable of replacing the energy we now produce by burning fossil fuel. It is entirely possible that solar and wind will not be able to provide a large part of our energy demands. Thus, if we try to hold fast to future reduction goals, and we are unable to produce enough reliable energy from wind and solar (and/or other alternative energy technologies), there may be future energy shortages and/or extremely high energy prices. Bottom line is you cannot just legislate how energy is produced. The technology must be capable of providing the energy demands of the people. If the technology were advanced enough, we would already be using more alternative energy, so cap and trade is not necessary to foster a switch to more alternative energy.
   Example arguments for. The technology will surely improve due to the economic incentive to reduce carbon emissions. And it need not be wind and solar, perhaps a currently unidentified method of energy production will be developed. Force people to find solutions and they will, otherwise we will just continue in our old ways of using fossil fuels.

   If you are considering a question like, "Should the US enact a carbon cap and trade policy in order to force companies to develop and use more alternative energy?", then you are going to need to find references on both sides of whether or not carbon cap and trade will or will not work to hasten the development and implementation of alternative energy that would not happen without carbon cap and trade. Do not just write about the benefits of the alternative energies or how they work to reduce carbon emissions as that is just a report on alternative energy and is not part of a debatable question. You can write about their technological readiness and whether or not implementation is more of a money/policy issue, in which case cap and trade might push more usage, or is it more that the technology is not ready, so that even with cap and trade, there would not be increased usage. You can discuss specific types of alternative energy, such as solar or wind, with respect to their technological readiness, ability to replace current sources of energy, etc. You need to relate whatever you choose to write about to the overall question of whether or not carbon cap and trade is something that should be done based on its potential effectiveness at pushing the US quicker toward using more alternative

energy. One side says that it will and so we should enact carbon cap and trade for that reason ... the other side says that implementing carbon cap and trade will not help us move toward more alternative energy, so we should not enact it for that reason.

A related topic question could be "Should the government just mandate that we produce a larger percentage of our energy from alternative or renewable sources rather than fossil fuels over time?" Similar for and against arguments can be made for this question.

10. What can we learn from the experiences that other countries have had in their implementation of emission control policies that could help us determine the potential effectiveness of a carbon cap and trade policy in the United States? Select a country or entity that has enacted a carbon cap and trade or other emission reduction policy. Discuss the pros and cons of current systems so far as reasons for and against the US taking similar action. The EU system is given as an example below. There are other countries that have attempted carbon emission reduction policies as well. It may be better to focus on the experiences of one or a couple of countries rather than trying to include all of them.

One example. The European Union Greenhouse Gas Emission Trading System (EU ETS) began operation in 2005? How has it worked so far? Present good and bad points. Does this tell us anything about the potential effectiveness of a carbon cap and trade policy in the United States? *Note. It is difficult to come to a consensus conclusion on the effectiveness of the EU system thus far. You will find some papers strongly arguing that it has been effective, some papers strongly arguing that it has been a complete failure, and many others in between. This is actually good for writing about this topic. Just be sure to include both points of view.*

11. Is a Federal law, such as cap and trade, necessary to accomplish emission reductions or is there a better way? You could debate federal vs more local control, e.g., states or regions, as being most effective in implementing an emission control system. You could also debate government programs in general vs grassroots-type public action as being most effective at accomplishing goals.

Example arguments for. The federal government is the only entity that can administer a cap and trade program. Not enough companies will reduce emissions voluntarily. If we try to rely on state or local governments, emitters will just move to areas with less strict emission controls, thus there would be no reduction in emissions countrywide. There are currently some state and local governments in the process of implementing carbon dioxide emission controls at the more local level. Problems or failures with these local programs could be arguments for having the federal government run the program.

Example arguments against. Instead of forcing everyone to comply with laws, it would be better if the public makes voluntary choices to reduce emissions, such as what products they purchase or which companies they chose to work with. Some may argue that this requires a concerted public education campaign (funded by whom? Government? Wealthy?) One argument is that getting serious emission controls done will require public-initiated grassroots type efforts that are not part of government. Others argue that more significant progress could be made if the legislation were enacted at the state or local level. One reason is the difficulty in getting the entire country to agree on a bill. It would be easier to get a local community or state to agree. Another reason is that state and local governments can be more efficient in running an emission control program than the federal government. There are currently some state and local governments in the process of implementing carbon dioxide emission controls at the more local level. Successes with these local programs could be arguments for not having the federal government run the program.

12. **Should carbon offsetting be allowed in carbon cap and trade and other emission reduction systems?**

    A carbon offset literally allows a company to "offset" some of its emissions by funding projects that reduce emissions elsewhere, e.g., funding renewable energy or tree-planting projects elsewhere. Suppose a company operating in a county with a carbon cap and trade law has used all of its allowed emissions for the year. Carbon offsets allow the company to continue to emit as long as it purchases a compensating (offsetting) amount of carbon offsets. There are many arguments for and against the use of carbon offsets with emission reduction policies, which makes this a suitable topic. For more on carbon offsets, see Overview of Carbon Offsets.

Remember that there are many other good topics for debate on this general theme that are not included in this list. You should be able to find something that interests you. In most cases, the more focused your topic, the better the paper. If you have any questions about selecting a suitable topic, please contact Dr. Ward.