Note: the answers below are not necessarily the “right” answers. The goal is to practice discussing these issues in the context of what we’ve learned in class.

Please hand the assignment at the end of class. Remember to put everyone’s name on this sheet. Please discuss the questions among your group, and be prepared to discuss them with the class.

Below are some statements about climate. Based on the topics we discussed in class argue for and/or against the presented arguments. The point of this exercise is not to prove that there is global warming / climate change, but to use the information that we learned in class to discuss these arguments.

1) In the past (such as during the Paleocene-Eocene Thermal Maximum 55 million years ago) Earth's climate was warmer than today, and these changes are adequately explained by mechanisms that do not involve human greenhouse gas emissions. Therefore, we should not worry about a warming climate.

In the PETM, the world was very different – notably the continents were in different positions than they are now. In the mid-Pliocene (~3.5 million years ago), the world was relatively warm, and the continents and ocean basins were roughly the same as today. However, modern humans, and modern society, were not present. In contrast, today the Earth has over 6 billion human inhabitants, with well-developed societies. Any change in the climate system, such as rising sea levels or shifting agricultural regions, may have dramatic effects on human society.

2) The last year in our town has been the warmest in the past five years. This is clear proof for global warming and we should immediately do something about it.

In order to detect climate change, we need long-term (10s – 100s of years) averages of temperature, precipitation, etc over a given region. 5 years may not be long enough to detect a statistically significant trend.
3) Because different climate models show different temperature increases and because the atmosphere is such a complex system we have nothing to worry about. Before we can quantify climate change better we should not take any action.

Even though different models predict different degrees of warming, they all predict the sign of the trend (warming). It is impossible to predict future climate with total accuracy, positive and negative feedbacks in the climate system will always allow for some degree of uncertainty. With the reasoning above, we will never do anything.

4) “Automakers are investing billions of dollars to develop and introduce new fuel-efficient automobiles with cutting-edge technologies like cylinder deactivation, hybrid-electric power trains, clean diesel, continuously variable transmissions, hydrogen internal combustion engines, and fuel cells. Consumer tax incentives can help spur sales of these vehicles. It is imperative that these incentives are technology neutral. The government should not pick winners and losers, but rather let consumers and the marketplace choose which technologies make sense for them.” quote from the Alliance of Automobile Manufacturers

It is common to regulate automobiles. For example, safety is regulated (consumers don’t have a choice whether or not to pay for seatbelts, for example). In addition, emissions are regulated through the Clean Air Act (likewise, consumers don’t have the option to spend less money to buy a car without a catalytic converter). Getting behind the wheel of an automobile impacts everyone around you, both for safety reasons and by impacting the air we breathe. It is not just a personal choice. If a technology improves the lives of people by, for example, improving air quality, the government should encourage such technology. (This is my opinion. – BA)