

## Carbon Reduction Challenge Assignment

Climate change is one of the most pressing problems facing society today, yet reducing our dependence on fossil fuel-based energy requires technological innovation as well as the change of decades-old habits. The main assignment for this course will be a “Carbon Reduction Challenge”, which will be carried out by teams of ~3-5 students. The project involves designing and implementing creative strategies to reduce each team’s CO<sub>2</sub> footprint.

To ensure the success of the student-chosen strategies, students will be required to perform the following three tasks:

- 1) Identify a method for reducing CO<sub>2</sub> emissions that can be accomplished over the course of 8 weeks (implementation period spans March 1 – April 30)
- 2) Quantify the total CO<sub>2</sub> emissions averted using their method by researching primary literature (books, journal articles, government and/or industry reports, etc); and
- 3) Present evidence at the end of the 8-week-long implementation phase that their strategy worked.

At the end of the semester, the team that executed the most compelling/largest carbon reduction strategy will be invited to Washington, DC, to present their research results to legislative aides and/or lawmakers on Capitol Hill. The projects will be scored on the basis of innovation, creativity, total CO<sub>2</sub> reduced, implementation of original plan, and degree of teamwork exhibited.

There are five main academic tasks associated with the project:

- 1) Rough Draft of Plan (***due Feb 8***): a 3-page (double-spaced) proposal that identifies a strategy for reducing one’s personal CO<sub>2</sub> footprint, explains the timeline for its implementation, and discusses the types of evidence that will be presented at the end of the semester to measure the strategy’s success. [See “Plan Requirements” on next page.]
- 2) Final Plan (***due Feb 22***)
- 3) Progress Report (***due Mar 30***)
- 4) Student Presentations (***Apr 18, 20, and 25***): 20-minute presentations with 10 minutes for questions and discussions, per team
- 5) Poster Presentations (***May 4, 2:50pm***): one poster per team; rough drafts encouraged by Apr. 26 if you would like preliminary feedback from professor.

## **Carbon Reduction Challenge: Plan Requirements**

Your plans must contain explicit statements and plans about the following requirements:

- 1) **Magnitude of minimum reduction:** 10,000 lbs CO<sub>2</sub>
- 2) **Additionality:** You must prove that the carbon reductions you will take credit for would not have happened without your actions. This is easy to prove for a building heating/cooling modification, but harder to do for personal choice-type projects.
- 3) **Scaleability:** Clearly state how your plan will scale up to the large carbon reduction numbers to be competitive in this challenge. Again, this is not so much an issue for campus infrastructure projects, but is a big issue for personal choice initiatives.
- 4) **Financing** (if appropriate): You are allowed to seek donations to support spending in the carbon reduction challenge to cover small expenses, but you must prove that the money was a donation.
- 5) **Quantification:** You must provide a “back-of-the-envelope” estimate of CO<sub>2</sub> reductions your initiative will achieve, citing peer-reviewed journal articles and government reports and web-sites only. Several examples of such sources should be provided.
- 6) **Documentation:** What kinds of documents/evidence will you collect over the course of the semester to prove that you achieved your stated CO<sub>2</sub> reductions?
- 7) **Division of labor:** Please indicate what activities the various members of your team will focus on over the course of the semester’s challenge.
- 8) **Team name:** Please devise a team name!

Reminder: Please submit one plan per team in Word format onto t-square.