

POS 359: Environmental Policy

Dr. Yixin Liu

Fall, 2024

BASIC INFORMATION

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Teaching Assistant: Kehinde Moses Ige

Classroom: Rolle Activity Center, Room 204

Class Hours: Monday/Wednesday: 2:20 - 3:35pm

Office: Raul H. Castro Social and Behavioral Sciences (65), Room 321

Office Hours: 2:00 - 5:00pm, Tuesday

COURSE DESCRIPTION

This course surveys environmental politics and policy, primarily in the United States. We will examine the nature and scope of environmental, energy, and natural resource problems; contrasting perspectives on their severity and policy implications; the goals and strategies of the environmental community and its opponents; public opinion on the environment; scientific, economic, political, and institutional forces that shape policymaking and implementation; approaches to environmental policy analysis; and selected issues in environmental policy both within the U.S. and globally.

LEARNING OBJECTIVES

The learning objectives of the course are to foster critical thinking skills appropriate for students of all majors, by carefully considering the context in which environmental decisions are made. I want you to be able to think about environmental policy in real life situations and express that thinking in writing and in discussion. Therefore, a major portion of the class will be devoted to environmental policy and practice through the utilization of case studies and a major project for the Northern Arizona University.

- What environmental policy is and how institutions and actors shape its implementation?
- Different policy areas and how to evaluate policy outcomes.

- Engage in research for a carbon neutrality campaign project and craft a clear and concise policy solution for Northern Arizona University.

Career Readiness Skills and Competencies

In every class you take at NAU, you learn professional skills and competencies that can support your future career. There are tons of ways an interdisciplinary education can help you meet and excel at your job goals and life desires. Below is a list of in-demand skills and career competencies from National Association of Colleges and Employers (NACE) you learn and practice in this class:

- **Critical Thinking:** Analyze diverse sources to understand and address complex environmental policy issues, particularly during case study discussions.
- **Communication (Written and Verbal):** Enhance written communication through case analyses and verbal communication through class discussions and presentations.
- **Teamwork:** Collaborate in small groups for Case Study Wednesdays and the Carbon Campaign Project, building and maintaining effective working relationships.
- **Leadership:** Take on leadership roles in group discussions and projects, utilizing personal and team strengths to achieve shared goals.
- **Problem Solving:** Develop actionable solutions for NAU's carbon neutrality challenge, identifying problems and researching potential strategies.
- **Analytical Skills:** Apply analytical frameworks to assess environmental policies, case studies, and the carbon solution campaign.
- **Professionalism:** Demonstrate professionalism through consistent participation, punctuality, and high-quality work in discussions and projects.
- **Career and Self Development:** Assess your interest in environmental policy and related careers through practical course applications like the Carbon Campaign Project.

COURSE MATERIALS

1. Rinfret, Sara and Michelle Pautz. 2023. *U.S. Environmental Policy in Action: Practice and Implementation*. Palgrave MacMillan.
 - This book is available for free from the NAU library. To access it, please click [HERE](#) and log in with your student account on EBook Central.
2. Hernan, R. E. (2010). *This borrowed earth: lessons from the fifteen worst environmental disasters around the world*. Macmillan. (Cited as BE in the following)
3. You are also required to access on-line reading materials posted on the Canvas site (see course schedule).

ASSIGNMENTS

Participation (10 points possible)

Attendance, punctuality, and participation are expected for all class sessions and have a significant impact on your final grade. Students are strongly encouraged to participate in class discussions with thoughtful comments. If an absence is essential, the student is responsible for notifying the instructor, as well as for ensuring the material covered during that session and the timely submission of any assignments that are due during their absence. The course instructor will not provide any extra instruction or materials to students who miss class unless it is prearranged or the absence is due to an unexpected, documented life event/illness.

Case Study Wednesdays (30 points possible)

On most Wednesdays, students will be required to form groups of 3 members and lead a 30-45 minute class discussion on one of the assigned case studies. The rest of the students in the class will engage in the discussion and are required to provide at least 4 ChatGPT interaction analyses based on the case study of the week throughout the semester.

What to include in discussion (10 points possible out of 30):

1. Origins/overview of the case (1-2 minutes).
2. Define the conflicts/controversy (5 minutes).
3. Identify how the case links to course materials for the week (5 minutes).
4. Prepare 5–7 discussion questions: Engage classmates in a fruitful discussion about the topic and explain why we should care about this case. To explain why we should care, students are required to go beyond the assigned case for the day and engage your classmates in learning about a particular aspect of environmental policy (*i.e.* what is happening today with the particular case) (15-20 minutes).
5. Conclude with a meaningful message or approach for the future (5 minutes).

The 10 points for the presentation portion is individually graded so please practice beforehand. Remember, your presentation should not be a regurgitation of your handout or a PPT with lots of text. A grading rubric will be provided.

The list of case studies for discussions:

1. *Week 4 Wednesday (9/18): How Policy is Made?*
BE: Bhopal, India, 1984
2. *Week 5 Wednesday (9/25): Official and Unofficial Policy Actors*
BE: Times Beach, Missouri, 1982
3. *Week 6 Wednesday (10/2): Translating Environmental Statutes*
BE: Love Canal, New York, 1978

4. *Week 9 Wednesday (10/23): Pollution*
BE: Chernobyl, Ukraine, 1986
5. *Week 10 Wednesday (10/30): Energy and Natural Resources*
BE: Brazilian Rainforest
6. *Week 12 Wednesday (11/13): Environmental Justice*
BE: Prince William Sound, Alaska, 1989

Non-presenter ChatGPT interaction analysis (20 points possible out of 30):

On case study discussion Wednesdays, non-presenting students are required **4 times (worth 5 points apiece)** during the semester to type a 1-page (single spaced) ChatGPT interaction analysis of the case study. I will provide GPT prompt to you before the class, and you need to copy that prompt to GPT3.5 and see what it generates. This assignment will ask you to analyze 3 questions: (1) what did the AI get right in this scenario? (2) How could you make it more sophisticated? What did it get wrong?

Note: We will have 6 case study discussions throughout the semester, if you do more than 4 analyses, each of them will receive bonus points. When submitting your analyses on Canvas, students should attach **Microsoft Word doc or docx files**; other forms of documents are **NOT accepted**.

Carbon Campaign Project (60 points possible)

Students will embark on an intensive, semester long project, which will link policy and practice. The focus of this project is to devise a campus-wide approach/solution so the Northern Arizona University can reach its 2030 carbon neutrality goal. As the 2023 NAU President José Luis Cruz Rivera Climate Emergency Declaration, "I make this declaration with a clear understanding that the last time NAU made a bold commitment to carbon neutrality, with the target date of 2020, we came up short. In making this declaration today, I realize that we risk receiving criticism for invoking rhetorical arguments that are not immediately backed by new funding for specific projects championed by the many individuals and groups at NAU who for years have proposed ideas to further our work in these areas." Our class will attempt to find solutions to the NAU 2030 carbon neutrality goal through a semester long project.

The *Appendix* at the end of the syllabus provides detailed assignment instructions.

GRADING

Total Points for the Course

Task	Points
Class participation	10
Case study discussion: Presentation	10
Case study discussion: non-presenter analysis	20 = 5 × 4
Carbon campaign project assignment 1: What is carbon neutrality?	5
Carbon campaign project assignment 2: Setting up the details	5
Carbon campaign project assignment 3: Project planning and proposal	10
Carbon campaign project assignment 4: Polling	15
Carbon campaign project assignment 5: The carbon campaign video	10
Carbon campaign project assignment 6: Presentation and solutions report	15
Total points	100

Late assignment: Students are expected to submit all work on the date specified in the course calendar. Any exceptions to this must be approved by the instructor 72 hours before the date in question. Students must complete all assignments to receive a grade for the course.

Final scores will be rounded to the nearest integer. Final grades will be assigned according to the following scale:

- A: 90-100
- B: 80-89
- C: 70-79
- D: 60-69
- F: 0-59

DETAILED COURSE SCHEDULE

Part 1: What is Environmental Policy

Week 1: Welcome

Monday (8/26): Course overview

Required reading:

- Syllabus

Wednesday (8/28): The nature of environmental problems

Required reading:

- Rinfret and Pautz, Chapter 1
- Hardin. (1968). "The tragedy of the commons." *Science*

Week 2: No Class

Monday (9/2): Labor day

Wednesday (9/4): Prof Liu at a conference

Required reading:

- NAU Climate Action Plan: <https://in.nau.edu/green-nau/nau-climate-action-plan/#>

Week 3: Evolution of American Environmental Policy and Public Opinion

Monday (9/9): Historical development of American environmental policy

Required reading:

- Rinfret and Pautz, Chapter 2

Suggested reading:

- DeSombre. (2018). Why Good People do Bad Environmental Things. Chapters 4 & 6

Due: Assignment 1 - What is carbon neutrality? (Submit on Canvas by 9:30am)

Wednesday (9/11): (1) Public opinion and behavioral outcomes (2) Introduction to the carbon campaign project

Required reading:

- Syllabus *Appendix*: Details for carbon campaign project

Week 4: How Policy is Made?

Monday (9/16): How policy is made?

Required reading:

- Rinfret and Pautz, Chapter 3

Wednesday (9/18): (1) Case study discussion; (2) Sign up for the carbon campaign teams

Required reading:

- BE: Bhopal, India, 1984

Due: Non-presenter ChatGPT interaction analysis (submit on Canvas by 9:30am)

Due: Assignment 2 - Setting up the details (submit the group contract end of class)

Week 5: Official and Unofficial Policy Actors

Monday (9/23): Official policy actors

Required reading:

- Rinfret and Pautz, Chapter 4 & 5

Wednesday (9/25): (1) Unofficial policy actors; (2) Case study discussion

Required readings:

- BE: Times Beach, Missouri, 1982

Due: Non-presenter ChatGPT interaction analysis (submit on Canvas by 9:30am)

Week 6: Translating Environmental Statutes

Monday (9/30): Translating vague statutes into rules and regulations

Required reading:

- Rinfret and Pautz, Chapter 6

Wednesday (10/2): (1) Rules and regulations; (2) Case study discussion

Required reading:

- BE: Love Canal, New York, 1978

Due: Non-presenter ChatGPT interaction analysis (submit on Canvas by 9:30am)

Week 7: The Implementation of Environmental Policy

Monday (10/7): Policy implementation

Required reading:

- Rinfret and Pautz, Chapter 7

Due: Assignment 3 - Project planning and proposal (Submit on Canvas by 9:30am)

Wednesday (10/9): (1) Project proposal discussion; (2) Tutorial for survey design

Week 8: Midterm (no class)

We won't have class during midterm week. You can use this time to prepare for your midterm exams in other classes. Additionally, you should use this week to work with your teammates on designing the survey.

Week 9: Pollution

Monday (10/21): Pollution

Required reading:

- Shapiro, J. S. (2022). Pollution trends and US environmental policy: Lessons from the past half century. *Review of Environmental Economics and Policy*, 16(1), 42-61.

Due: Assignment 4a - survey draft (Submit on Canvas by 9:30am)

Wednesday (10/23): (1) Case study discussion; (2) Survey design discussion

Required reading:

- BE: Chernobyl, Ukraine, 1986

Due: Non-presenter ChatGPT interaction analysis (submit on Canvas by 9:30am)

Week 10: Energy and natural resources

Monday (10/28): Managing energy and natural resources

Required reading:

- Rinfret and Pautz, Chapter 9

Wednesday (10/30): (1) Case study discussion; (2) Tutorial on polling result presentation

Required reading:

- BE: Brazilian Rainforest

Due: Non-presenter ChatGPT interaction analysis (submit on Canvas by 9:30am)

Week 11: Evaluating Environmental Policy

Monday (11/4): Policy evaluation

Required reading:

- Rinfret and Pautz, Chapter 8

Due: Assignment 4b - polling result analysis (Submit on Canvas by 9:30am)

Wednesday (11/6): (1) Policy evaluation; (2) Polling result presentation

Week 12: Environmental Justice

Monday (11/11): What is environmental justice?

Required reading:

- Mohai, P., Pellow, D., & Roberts, J. T. (2009). Environmental justice. *Annual Review of Environment and Resources*, 34(1), 405-430.
- Mohai, P., & Saha, R. (2015). Which came first, people or pollution? A review of theory and evidence from longitudinal environmental justice studies. *Environmental Research Letters*, 10(12), 125011.

Wednesday (11/13): (1) What cause environmental injustice; (2) Case study discussion

Required reading:

- BE: Prince William Sound, Alaska, 1989

Due: Non-presenter ChatGPT interaction analysis (submit on Canvas by 9:30am)

Part 4: Future Challenge and Final Project

Week 13: Carbon Project Preparation

Monday (11/18): The future of climate change

Required reading:

- Rinfret and Pautz, Chapter 11

Wednesday (11/20): One on one team meeting with Professor Liu

Due: Assignment 5 - campaign video (upload to YouTube and email me the link by 9:30am)

Week 14: No Class

Monday (11/25): Prof Liu at a conference

Wednesday (11/27): Thanksgiving

Week 15: Carbon Solution Presentation

Monday (12/2): Carbon solution presentation

Wednesday (12/4): Carbon solution presentation

Week 16: Final Week

Thursday (12/12): Final solution report

Due: Assignment 6 - solution report (Submit on Canvas by 11:59pm)

COURSE POLICIES

- **Extra Credit:** See the section of assignments.
- **Classroom Etiquette:** The expectation is that you will maintain a high level of professionalism in your classroom conduct with me, and with your fellow students. This means being respectful during class discussions and in all communications with the professor and others. Failure to do so will result in removal from class discussions. Instructors have the authority and responsibility to address disruptive behavior that interferes with student learning, which can include the involuntary withdrawal of a student from a course with a grade of "W". For additional information, see NAU's Disruptive Behavior in an Instructional Setting policy at <https://nau.edu/university-policy-library/disruptive-behavior>.
- **E-mail Etiquette:** E-mail is a wonderful tool for you to contact me with questions, but it does not replace office hours. If you have involved questions about course material, you should set up a time to come see me.
- **Incompletes or Withdrawals "W" for the Course:** If for some reason the course is not working out for you, please adhere to the University's policies for the last day to drop a class. Incompletes should request should be sent at least 4 weeks prior to the end of the semester.
- **Class laptop/electronic device policy:** I realize that many people take all their notes directly on laptops or other devices. I will attempt to honor this choice, so long as students do not abuse the privilege. However, if permitting general use of laptops harms the user's ability to participate meaningfully in class or leads to other students being distracted, I will suspend the privilege and revert to only permitting laptop or other electronic use by students with a documented need for such assistance (such as a disability or language accommodation). Similarly, cell phones/texting should be reserved for emergencies, and texting in class will hurt your overall grade.
- **Late Assignments:** Students are expected to submit all work on the date specified in the course calendar. Any exceptions to this must be approved by the instructor 72 hours before the date in question. Students must complete all assignments to receive a grade for the course.
- **University Attendance Policy:** (please make sure to follow the participation course policies listed above too) Students who are registered for a course but do not attend the first two class meetings may be required by the instructor to drop the course. This rule allows for early identification of class vacancies and to permit other students to add classes. **Students not allowed to remain must complete a drop form or drop the course on the Louie to**

avoid receiving a failing grade. Students who know they will be absent should contact the instructor in advance.

- **Wikipedia:** This online source is not reliable and should not be cited in any course assignment. The goal is to become accustomed to using scholarly sources for all work in any of your courses at the University.
- **Academic Integrity:** NAU expects every student to firmly adhere to a strong ethical code of academic integrity in all their scholarly pursuits. The primary attributes of academic integrity are honesty, trustworthiness, fairness, and responsibility. As a student, you are expected to submit original work while giving proper credit to other people's ideas or contributions. Acting with academic integrity means completing your assignments independently while truthfully acknowledging all sources of information, or collaboration with others when appropriate. When you submit your work, you are implicitly declaring that the work is your own. Academic integrity is expected not only during formal coursework, but in all your relationships or interactions that are connected to the educational enterprise. All forms of academic deceit such as plagiarism, cheating, collusion, falsification or fabrication of results or records, permitting your work to be submitted by another, or inappropriately recycling your own work from one class to another, constitute academic misconduct that may result in serious disciplinary consequences. All students and faculty members are responsible for reporting suspected instances of academic misconduct. All students are encouraged to complete NAU's online academic integrity workshop available in the E-Learning Center and should review the full Academic Integrity policy available at <https://www9.nau.edu/policies/Client/Details/1443>. As such, all work submitted must be your own; no duplicate work (work completed for another class) will not be accepted. Acts of cheating or plagiarism will result in a grade of zero (0) for the assignment. To avoid acts of plagiarism, cite each reference or source you use and give proper credit for the ideas, opinions, and findings of others. When you are using the exact words of others, you must use quotation marks and include the page number where you found the quote in your citation.
- **AI Policy: Limited use of generative AI is permitted in specific contexts.** This course (or assignment) allows for the use of generative artificial intelligence (AI) technologies as part of the research and preparation phase of the work; for example, using these technologies to assist with research, generating ideas, creating summaries of topics, and developing drafts of text that are then used as an input to the work students do to generate a final assignment. In this use, students should be aware of the potential limitations of using generative AI as a tool for learning and research, since information is not always reliable or accurate, and should critically evaluate the sources, methods, and outputs of generative AI systems. Any final work submitted by students that contributes toward the course grade is expected to be generated by the students themselves, working individually or in groups as directed by class assignment instructions. **Submitting final work created by generative AI constitutes an academic integrity violation.** If you have any questions about this policy or if you are unsure whether a particular use of generative AI is acceptable, please ask for clarification before using such technologies.
- **Canvas:** This class is supported by Canvas. Please refer to this site regularly for addi-

tional readings, announcements, grades, submitting assignments, or updates to the schedule. When submitting assignments on Canvas, students should attach **Microsoft Word doc or docx files**.

- **Sensitive Course Materials:** University education aims to expand student understanding and awareness. Thus, it necessarily involves engagement with a wide range of information, ideas, and creative representations. In their college studies, students can expect to encounter and to critically appraise materials that may differ from and perhaps challenge familiar understandings, ideas, and beliefs. Students are encouraged to discuss these matters with faculty.
- **Non-discrimination and anti-harassment:** NAU prohibits discrimination and harassment based on sex, gender, gender identity, race, color, age, national origin, religion, sexual orientation, disability, or veteran status. Due to potentially unethical consequences, certain consensual amorous or sexual relationships between faculty and students are also prohibited as set forth in the Consensual Romantic and Sexual Relationships policy. The Equity and Access Office (EAO) responds to complaints regarding discrimination and harassment that fall under NAU's Nondiscrimination and Anti-Harassment policy. EAO also assists with religious accommodations. For additional information about nondiscrimination or anti-harassment or to file a complaint, contact EAO located in Old Main (building 10), Room 113, PO Box 4083, Flagstaff, AZ 86011, or by phone at 928-523-3312 (TTY: 928-523-1006), fax at 928-523-9977, email at equityandaccess@nau.edu, or visit the EAO website at <https://nau.edu/equity-and-access>
- **Title IX:** Title IX is the primary federal law that prohibits discrimination on the basis of sex or gender in educational programs or activities. Sex discrimination for this purpose includes sexual harassment, sexual assault or relationship violence, and stalking (including cyber-stalking). Title IX requires that universities appoint a "Title IX Coordinator" to monitor the institution's compliance with this important civil rights law. NAU's Title IX Coordinator is Elyce C. Morris. The Title IX Coordinator is available to meet with any student to discuss any Title IX issue or concern. You may contact the Title IX Coordinator by phone at 928-523-3515, by fax at 928-523-0640, or by email at elyce.morris@nau.edu. In furtherance of its Title IX obligations, NAU will promptly investigate and equitably resolve all reports of sex or gender-based discrimination, harassment, or sexual misconduct and will eliminate any hostile environment as defined by law. Additional important information about Title IX and related student resources, including how to request immediate help or confidential support following an act of sexual violence, is available at <https://in.nau.edu/title-ix>.

APPENDIX: Details for Carbon Project (60 points possible)

You will form a student selected project team that devises and presents a solution on how to meet the Northern Arizona University's 2030 Carbon Neutrality. The class will have 5 total project teams that consist of 4 students per team (descriptions listed below). Each project team will come up with their own unique plan or approach and should keep in mind how environmental factors (economy, public opinion, etc.) are to be interpreted as they are today (Fall 2024). You may also assume that the AZ state legislature, Flagstaff residents, and the broader campus community are key players for your project team to consider when devising a plan for the Northern Arizona University to achieve its 2030 Carbon Neutrality goal. Our "election/project selection" will be held the last week of class. Listed below are assignment details to complete this project and many of the due dates have built in group time to meet during our designated class time. Student groups should not use this day as a "free" day.

Project Team Descriptions

- **Project Manager:** Ensures the group stays on task—should use documentation to track task completion and is responsible for scheduling group meetings, meeting deadlines, and maintaining professional conduct. Remember, you are the point person for the team, responsible for resolving any group issues that may arise. Additionally, it is your responsibility to ensure that each group member contributes equally to the final report. Do not select this role if you are not organized and dedicated to the project. The Project Manager will lead Assignment 6: Final Presentation and Solution Report.
- **Science Expert:** Has a background in the natural sciences and will lead the group's efforts in translating complex scientific terms for the team and integrating them into the project proposal. The Science Expert will lead Assignment 3: Project Planning and Proposal.
- **Politics Expert:** Has a background in the social sciences and will lead efforts to understand public opinions and the social impacts of the project. The Politics Expert will lead Assignment 4: Polling.
- **Media Expert:** Has a strong interest in communication and is skilled in media tools. The Media Expert will lead Assignment 5: Campaign Video.

Assignment 1: What is Carbon Neutrality? (5 points possible)

Each student is required to read the Northern Arizona University Climate Action Plan website (<https://in.nau.edu/green-nau/nau-climate-action-plan/#>) and individually research and address the following questions: what is carbon neutrality? Who are the players? What are the different approaches? What sources of renewable energy should be used to achieve carbon neutrality? What have other campuses done? More details will be discussed in class, but this assignment should be 2 pages single space.

Due date: **September 9, 9:30am, (Canvas)**

Assignment 2: Setting up the Details (5 points possible)

The second assignment is to meet with your group and sign a contract which delegates duties. Use this opportunity to talk about what you each believe is important for the project, begin to discuss how the work will be divided (review/assign specific roles/leads for each assignment). It is strongly recommended that your group's project manager collects email addresses/phone numbers and coordinates any out-of-class communications for campaign projects.

For assignment 2, each group will fill out a contract and a brief document (provided in class) that outlines the responsibilities for each student in the group. For example, assign roles, and map out how assignments (3-6) will be completed on time (i.e. who is submitting, collecting data). It is also expected that the final presentation (assignment 6) will reflect each student's contribution in his/her own area of expertise.

Due date: **September 18, end of class**

Assignment 3: Project Planning and Proposal (10 points possible)

In this assignment, student groups are responsible for developing a strategic plan for the carbon neutrality campaign that includes: (1) a campaign slogan/motto/team name, (2) identify specific goals for the campaign (e.g., reducing campus energy consumption by 10%), and (3) use your research from assignment 1 to come up with 3-4 potential ideas/approaches for the campus to reach your campaign goals (i.e. campus fee, fines for high traveling departments, investment in a particular renewable energy). Remember, each team should have different/unique approaches. No group should have the same approach. More details will be discussed in class, but this assignment should be 2 pages single space.

Due date: **October 7, 9:30am (Canvas)**

Assignment 4: Polling (15 points possible)

Assignment 4 should help each group to come up with a 10-question survey to aide in determining if their approach is viable. Thus, each group will then administer this survey to at least 30 total students across campus (faculty/staff can be included as well).

Thus, the first part (5 points) of this assignment is to submit your DRAFT survey questions by **October 21, 9:30am (Canvas)**.

Once the professor approves these questions, groups should acquire responses and submit the polling result analysis by **November 4, 9:30am on Canvas (bring filled-out responses to class)**. In the analysis, groups should post an analysis of responses in a Word document – list the questions and then the breakdown of the results in one Word attachment. This document should also include a brief paragraph at the end explaining how these results will help or hinder your group's overall strategy for the campus. The point of this assignment is to help gauge what approach will help your team provide the best solution for the campus (10 points possible).

Assignment 5: The Carbon Neutrality Video (10 points possible)

Each group is required to create at least 2-3 very short strategic videos that are approximately a total of 3-5 minutes in length. Please use YouTube to create this video so it will be viewable in class. In these video(s) your group should highlight (in no particular order): what your slogan is, what carbon neutrality approach/solution does your group support, and why should we prefer your approach to carbon neutrality?

Due date: **November 20, 9:30am (Youtube)**.

Assignment 6: Presentation and Solutions Report (15 points possible)

During the final week of the semester, each group will present their campus solution for carbon neutrality. Students are required to not only show their campaign video but also provide an introduction (spoken) and conclusion (spoken) as to why the university should select your approach for carbon neutrality. Upon completion of the presentations, all students in this class will vote for the rank of solutions. Please note that regardless of who wins or loses, it does not impact your final grade. But, the winning group will receive 1 point added to their final course grade.

Presentation details: It is expected that each group member will contribute to the presentation and be present. Presentations should last approximately 10 minutes, with 5 minutes for questions from the audience. No presentation will go longer than 15 minutes. The final presentation grade is for each group member and will be assessed on the following: 1) major components of a "winning" carbon neutrality approach for the Northern Arizona University; 2) best use of campus resources; 3). Incorporation of ad(s) that encapsulate(s) team message; 4) each group members' contribution and "expertise," including an understanding of carbon neutrality, and 5) overall organization of presentation and its delivery. Groups do NOT have to deliver their presentation in this order! Just be sure to touch on each of these areas. Successful presentations are well-developed, organized and unique. Due dates: **Presentations will be on December 2 and 6**, if you decide to use a PPT presentation or some sort of media, this should be emailed to the professor 24 hours prior to your presentation.

Solutions Report Details: Each group should put together a presentable report that includes assignments 1-5. But the idea is that groups will provide an overview of carbon neutrality, and how their team came up with their proposal. More details will be discussed in class, and the final report is due, **December 12, 9:30am (Canvas)**.