



WATSON INSTITUTE
INTERNATIONAL & PUBLIC AFFAIRS
BROWN UNIVERSITY

**MPA 2475 - Policy Problems
of the Twenty-First Century.**

Decarbonizing our economies

Spring 2022 – Mondays - 3:00-5:30pm

Teacher

Alice Plane is a political analyst and a writer. She focuses on the various stakes that climate change poses to the planet's ecosystems, including human societies, with a specific perspective on equity.

She has worked in France, Madagascar and Afghanistan, assuming roles as a humanitarian and aid program officer, as a consultant and as a diplomat for France and the EU. From 2016 to 2020, she headed the Climate unit within the French ministry of Foreign Affairs, coordinating international climate negotiations for France.

She is the recipient of the *Terres d'Ailleurs 2011* literary prize for her travel book across Central Asia and Iran and is currently finalizing a collection of climate-anticipation short stories.

alice_plane@brown.edu

Gabby Rogers graduated from the MPA program recently and received her bachelor's in chemical and biological engineering from Princeton University in 2016. Before coming to Brown, she worked as a staff engineer for an environmental consulting firm in Fort Lauderdale, Florida. Her specific policy area of interest is environmental justice, particularly the equitable access to and treatment of water. Gabby spent her MPA consultancy working with the World Resources Institute to determine the donor efforts in agroecology. She is originally from Kingston, Jamaica and is passionate about dogs and podcasts.

gabrielle_rogers@alumni.brown.edu

Prerequisite

The MPA2225 Fall 2021 elective can serve as a useful basis for this class – although it is not a requirement. The purpose of that elective was about the practice and issues at stake in climate negotiations. This core course will allow students to learn what decarbonizing the economy at the national level entails, taking into account biodiversity and equity issues.

The only partially redundant elements will be in the first class of this MPA2475 course: we will review the state of the art in climate and biodiversity science and failure to address them in session 1.

Course context

Climate change is everywhere, it concerns everyone, it impacts everything and it is already there. This is unfortunate, yet it is a fact. Take the year 2021 only: record heat in the Arctic, forest fires and heat dome in north-western Americas, cyclones in the Caribbean, flash floods

in Russia, mice invasion in Australia, famine in Madagascar, locust invasion in Eastern Africa... and the list is growing every week.

Yet the worst effects of climate change have not yet materialized: entire cities and, in some instances, entire countries under water; hundreds of millions and up to a billion refugees; loss of habitat for most species of animals and plants leading to the extinction of a fourth of all known species on this planet... just to name a few that could happen in your own lifetime.

In order to avoid such planetary-scale catastrophic course of action, there is a general consensus that we have to cut our collective emissions by half by 2030 latest and reach net zero emissions by 2050. However, greenhouse gas emissions to date keep growing at a scale and pace never seen in history. It is now obvious that we are not making the necessary radical efforts that we could – and should - do. As if someone was shouting “help, there’s a fire!” while running straight into the flames with a gallon of oil.

While some might feel despair about this situation, the tools to reverse the current trend do exist and could be put in place in a relatively short time frame if only we wanted to.

Course description

What can we actually do to reduce our collective emissions as policy-makers?

In Part I, this course will offer you the means to answer this question, focusing on the 4 most emitting sectors of greenhouse gases to date: Energy, Buildings, Transportation, and Agro-industry -- also looking at industry overall as well as consumption behaviors. We will be studying together what the means to decarbonize such sectors in a given country are – using on actual data sets. You will be asked to work in small groups on a given country (including but not limited to some of the biggest GHG emitting countries: the USA, China, India, Germany and Brazil). By the end of mid-term, you will produce an “issue brief” proposal for economy-wide decarbonization in the country assigned to your group. Your work will be supported by En-ROADS, an interactive modeling tool integrating systems dynamics by [Climate Interactive](#).

In Part II of the course, while practicing your skills in op-ed writing to promote your policy proposal(s), you will delve into the hurdles of implementation, looking at the (extremely low) rates of compliance of environmental policies, at the issue of social justice and fair transition, and eventually touching upon our very own (individual as well as collective) immunity to change.

Over the course of the semester, we will identify the power dynamics of the various stakeholders of climate (and economic) policy and empowered you to actively address them with adequate proposals.

Note that this class is about the public policy options to decarbonize our economies. As such, it will focus on the policy options to mitigate (meaning: reduce drastically) our greenhouse gas emissions. The course will only incidentally delve into the public policies to adapt (meaning: to make our societies more resilient to the current and future negative impacts of climate change).

Course Time Allocation

Students will spend 2.5 hours per week in class (32.5 hours total). Required reading and group assignments entail approximately 5 hours per week (65 hours). In addition, preparing for the exam and writing and researching the policy-brief and op-ed, and preparing the group presentation are estimated at total of approximately 180 hours over the course of the term.

Attendance to the class and active participation in class discussions as well as group assignments is compulsory. Failure to do so may affect your grades, unless you have a valid reason and that you have informed the teacher well ahead of the class.

Learning objectives

By the end of this course you will be able to:

1. Analyze how advocates and policymakers use data to frame policy problems
2. Evaluate how stakeholders at the state level can address climate mitigation

Through class participation and exercises, you will also practice several applied skills that good policymakers use and develop throughout their careers:

1. Using descriptive data to frame a context and a policy problem
2. Breaking down a complex social and political problem into its components
3. Defining policy tasks in terms that recognize the relevant constituencies (“stakeholders”) and assessing political feasibility.
4. Gain experience in public-facing writing, including issue briefs and op-eds.

Grading

You will be assessed on:

- *In-class participation - 20%*

In order for this class to be a true learning experience, active participation is essential. You will be given exercises and practices all along the semester.

The grading of your participation will reflect your understanding of in-class learnings, personal research, commenting on your peers’ in-class presentations as well as sharing your thoughts after studying the required material prior to each class.

There is no “bad” question and sometimes there are no “good” answers either. Climate change is a very complex issue, and it can yield a lot of anguish. You will not be judged (though you may be challenged) for any position you might take.

- *Group focus on one country – 40%*

At the beginning of this course, we will split the cohort in groups of 3-5 students. Each group will choose one country which they will specifically research during the whole semester – and be expected to produce weekly updates either collectively or individually – up until the presentation of a full policy brief with your group’s recommendations to decarbonize that country’s economy.

Because most of the assignments are to be delivered as a group, you may be assigned up to 4 short individual questionnaires in the course of the semester, to check on personal progress (to be determined as the course progresses).

- *Individual Op-Eds - 40%*

Based on your background work in the first part of the course, you will be asked to prepare an opinion editorial after identifying what, in your opinion, is the one most impacting thing that could be done to mitigate climate change in your chosen country. You are expected to actually try and get it published in that country (if you do succeed to get it published, you will get additional points to your final grade).

There will be no final exam.

Academic Conduct

Everyone in the class is expected to follow the standards of academic honesty. Please read Brown University's policies on academic conduct carefully. You must give a citation when you use an author's ideas in your writing, even if you do not quote the text word-for-word. These rules apply both to conventional published sources and to materials drawn from Internet sources and other digital media. If you have any questions, please ask.

Accommodations

I am committed to the full inclusion of all students. Please inform me early in the term if you have a disability or other conditions that might require accommodations or modification of any of these course procedures. You may speak with me or my teaching assistant, Gabby Rogers, after class or during office hours. For more information, please contact Student Accessibility Services at 401-863-9588 or SAS@brown.edu. Students in need of short-term academic advice or support can contact one of the Deans in the Office of the Dean of the College.

Disclaimer

This is a new course offering – the workload presented in this syllabus, composed of assignments and readings, may vary along the course of the semester.

It is well understood that this course is part of a larger program: in case you feel that the workload is too much, you are most welcome to share this with the professor or teaching assistant.

All assignments will be due by Thursday midnight, unless otherwise specified.

CLASS SCHEDULE

Class 1 (Jan 31st) Understanding “Code Red for Humanity”

Prior to any discussion on Climate Change, learning and reading the science of it allows us to grasp its breadth in scope, scale and time. This introductory class will delve into the findings of the Intergovernmental panel on Climate Change’s Sixth Assessment Report (AR6) and the Intergovernmental Panel on Biodiversity and Eco-systemic Services (IPBES).

We will reflect upon the economic failures to deal with climate change (externality approach, free-rider’s dilemma, tragedy of the horizon) as the first and foremost rationale for policy-makers to up their interest in tackling this “code-red for humanity”.

In this first class, you will also be assigned to small groups with whom you will spend the rest of the semester analyzing policy options to decarbonize the economy in one given country, chosen among the largest greenhouse gas emitters (including but not limited to: the USA, China, India, Germany and Brazil). To kick-off group work, you will be asked to work on the AR6 and IPBES *regional* fact sheets, analyzing what changes are expected in various areas of the Earth due to climate change and biodiversity loss.

Readings

- Speech by Mr Mark Carney, Governor of the Bank of England and Chairman of the Financial Stability Board, at Lloyd’s of London, London, 29 September 2015 ([Mark Carney: Breaking the tragedy of the horizon - climate change and financial stability \(bis.org\)](https://www.bis.org/press/20150929.htm))

Group Assignment for the next class

Write an analysis (max 4 pages) of the expected impacts of climate change on the country of your choice – based on the IPCC regional fact sheets, the Climate Impact Map, the NOAA sea level rise map and the IPBES regional reports. Your contribution should include maps/screenshots.

Useful resource on the impacts of climate change and biodiversity loss

- [Impact Map | Climate Impact Lab](https://climateimpactlab.org/) : its impact map shows the temperature change up to the end of this century
- [Sea Level Rise - Map Viewer | NOAA Climate.gov](https://www.noaa.gov/sea-level-rise/) : this interactive map allows you to check on the coastal impacts of sea level rise, high tide flooding, vulnerability, and provides local scenarios.
- [Sixth Assessment Report \(ipcc.ch\)](https://www.ipcc.ch/)- Set of slides with key figures
- [Sixth Assessment Report \(ipcc.ch\)](https://www.ipcc.ch/) – Regional Factsheets (2-pagers)
- [Global Assessment Report on Biodiversity and Ecosystem Services | IPBES secretariat](https://www.ipbes.org/global-assessment-report-on-biodiversity-and-ecosystem-services/)
- [Regional/subregional assessments on biodiversity and ecosystem services | IPBES secretariat](https://www.ipbes.org/regional-subregional-assessments-on-biodiversity-and-ecosystem-services/)
- [CO₂ and Greenhouse Gas Emissions - Our World in Data](https://www.ourworldindata.org/co2-and-greenhouse-gas-emissions) – climate change data per country

Class 2 (Feb 7) Climate Action Simulation

To get a sense of the big picture of climate policy stakeholders, available options and their respective impact on greenhouse gas emissions, this second class will be entirely devoted to a simulation game in which you will be playing the roles of various stakeholders worldwide, aiming at agreeing on a set of public policies that could enable the world to remain under 2 degrees Celsius of global warming.

Readings

- IPCC AR6 volume 1 Press release: [Climate change widespread, rapid, and intensifying – IPCC – IPCC](#)
- [The Magic of “Multisolving” \(ssir.org\)](#), Elisabeth Sawins, Stanford Review of Social Innovation

Individual assignment for the next class

Either using the scenario achieved in-class or through running your own, consider the economic, political, and social issues relevant to the successful implementation of your proposed policies to remain under 2 degrees of global warming– if running your own, please include a screen shot (see template).

Class 3 (Feb. 14): The Energy Mix

In this class we will review the various energy sources available to power our economic needs, what portion of emissions do they share and how they can be balanced in a country mix – also considering implications on health, biodiversity and equity.

Readings

World Energy Outlook 2021

[Perspectives for the Energy Transition \(irena.org\)](#) (2017)

Additional readings (to be updated)

On coal

[Explaining the increase in coal consumption worldwide \(theconversation.com\)](#)

[Mapped: The world’s coal power plants in 2020 \(carbonbrief.org\)](#)

[The World Needs to Quit Coal. Why Is It So Hard? - The New York Times \(nytimes.com\)](#)

On oil&gas

(tbd)

On fossil fuel subsidies

[Explainer: The challenge of defining fossil fuel subsidies - Carbon Brief](#)

On electrification

[The Role of Critical Minerals in Clean Energy Transitions – Analysis - IEA](#)

On nuclear energy

(IEA report to be published by then – tbc)

Group Assignment for the next class

Prepare a background analysis of your countries past/current energy mix noting each known energy sources and explaining why it has been used (or not), and the reason why it currently has that share of the mix. What evolutions could you suggest in this mix, given the country context, in the future? (4 pages)

(Winter break - no class on Feb 21st)

Class 4 (Feb. 28) Policy options for decarbonizing the energy mix while providing access to energy for all

Review of the policy options available to drive the decarbonization of the energy sector.

Soft skill building: how to write a policy brief.

Readings

Explainer: The challenge of defining fossil fuel subsidies - Carbon Brief ([Links to an external site.](#)): a must-read 2017 analysis by the UK-based climate think tank Carbon Brief - a thorough and easy-to-read piece on the difficulty of defining what such subsidies actually entail, how they are perceived by the various organizations in charge of defining them as well as the countries' governments, and the consequences this can have on equity.

Fossil fuels - Organisation for Economic Co-operation and Development ([oecd.org](#)) ([Links to an external site.](#)): This large database also includes country notes and country datasets. It integrates data from the IEA and can serve as a useful resource for your country papers.

How Large Are Global Energy Subsidies? ([imf.org](#)) ([Links to an external site.](#)) This 2015 IMF working paper (representing the views of its authors alone) brought a groundbreaking change in perception on the idea of "fossil fuel subsidies", entailing also the true cost ("externalities") of failing to reduce them in terms of health and environmental damage. I recommend reading at least the Introduction.

What is Carbon Pricing? | Carbon Pricing Dashboard (worldbank.org) ([Links to an external site.](#)) this clear and short presentation of carbon pricing policy options includes a set of links and references at the bottom of the page which you may find useful.

On Framing a Policy Brief

Frameworks Institute, "**Framing Public Issues: A Toolkit**"; available at: <https://www.frameworksinstitute.org/wp-content/uploads/2020/07/FramingPublicIssuesfinal.pdf> ([Links to an external site.](#));

Group assignment

Based on your work of the past classes, write a detailed policy brief on how to decarbonize the energy mix – which changes to bring but also through which policy approaches could there be brought about, to whom and in what time scale?

Class 5 (Mar 7) Decarbonizing the industry, transport and building sectors

In this class we will review possible standards of construction and buildings maintenance as well as how to approach unlicensed constructions (especially in megapolis of the Global South).

We will also delve into industrial efforts to reduce emissions in the production of certain goods (focusing on cement), connecting it to the carbon border adjustment mechanism proposed in the EU.

Also, we will look at the various approaches to decarbonizing the transport sector for goods and for people, both considering highly urbanized areas, or more remote routes.

The class will host **a guest speaker, Dr. Huma Gupta**, Assistant Professor at the Department of Architecture, MIT, on Urban Dwellings in the Global South and Decolonial Ecologies.

Readings

The challenge of decarbonizing heavy industry (Links to an external site.) ([brookings.edu](https://www.brookings.edu)) ([Links to an external site.](#)), by Samantha Gross, 2021. One could define the findings of this study published by the Brookings Institute as "realistic". Another way to characterize it could be "singularly lacking imagination". I highly recommend that you read the Executive summary (p. 1-4) and the Conclusion (p.20-21).

Carbon Border Adjustment Mechanism (europa.eu) (Links to an external site.) is a short institutional presentation of the Carbon Border Adjustment Mechanism (2-pager). Make sure you understand what this CBAM is before coming to class on Monday.

The Policy Planning Toolkit for Urban

Dwelling - <http://www.bcnuej.org/2021/04/08/policy-and-planning-toolkit-for-urban-green-justice/> ([Links to an external site.](#)) ([Links to an external site.](#)) can be read as guide to think about urban planning with both ecological and equity considerations in mind. This document does not need to be read fully in the realm of this class, yet it will be useful for your writing assignment - I recommend reading closely the Table of content, and possibly the "Equitable green development" part (starting page 144). Last parts of the document propose case studies, applied to North America and Western Europe only.

"**LEED: One Global Standard for a Global Economy**", by Rick Fedrizzi, is not going to tell you what the LEED standard is, nor will it delve into the notion of "passive houses" or "energy-positive buildings". Google can do that for you. What this 2-pager does is giving you a sense of possibility.

Reducing Your Transportation Footprint | Center for Climate and Energy Solutions (c2es.org) ([Links to an external site.](#)) is a short pedagogical presentation of the impacts of the chosen means of transportation on GHG emissions (except for boats), from the perspective of an individual living in the US.

The Decarbonization of Transportation | The Geography of Transport Systems (transportgeography.org) ([Links to an external site.](#)) - in just 1-page, this document based on

OECD data will provide you with a sense of what can be done to decarbonize transportation with public policy tools ranging from Economics to Infrastructure, Regulatory and Innovation/IT. More of a way to give you the right "key words" so that you know what to look for.

Group assignment

Based on your work of the past classes and your analysis of the country's current situation, write a detailed policy brief on how to decarbonize the transport, buildings and industry sectors in your chosen country. Max 6 pages (aim for 3-4).

(12 March: mid semester)

Class 6 (March 14): Addressing the institutional blockages to climate action

Almost as important as “what to do” is “how to address what prevents us from doing it”. In this class, we will review the various types of structural headwinds that prevent climate action and what are the underlying values that prevent us from achieving the change we aim for.

As a guest speaker, we will welcome (via zoom) Camila Thorndike, Climate and Energy Advisor to Bernie Sanders in the current legislature.

Readings

Escaping Capability Traps through Problem-Driven Iterative adaptation (PDIA), Matt Andrews, Lant Pritchett and Michael Woolcock, Working Paper 299, Center for Global Development, June 2012.

This one is a nice tool to think in terms of "capacity-building" with an organizational approach to change. In reading it, please replace in your mind the word "developing" by "developed". Or even better, replace in your mind the word "countries" by the one country you are working on.

"Diagnose the Political Landscape", chapter 6 in *The Practice of Adaptive Leadership, Tools and Tactics for Changing your Organization and the World*, Ron Heifetz, Alexander Grashow, Marty Linsky.

Make sure you understand what you are reading - try to think how it could apply to your country's proposed decarbonization pathway. Try to think how it could apply to our class and where you position yourself in there. Try to think how it could apply to your mini-groups and the roles you are embodying there too.

Group assignment

Prepare an analysis on your country's institutional context / governance regime and ponder which are the more adequate institutional/governance approaches to push for improved climate and equity policies. Max. 4 pages.

Class 7 (March 21): Agriculture and food systems

In this class, we will review the special place of Agriculture in the climate arena – both a major source of emissions but also a strong potential area for trapping more carbon into the ground.

We will also study and analyze the recommendations of the EAT-Lancet on sustainable diet and discuss the “meat”-lobby's actions – starting to address the policy problem from the consumer-behavior perspective.

Option to play an Agricultural policy game based in an African country (Agritopia).

Readings (to be updated)

The EAT-Lancet publication

[Tackling Climate Change through Livestock: A global assessment of emissions and mitigation opportunities \(fao.org\)](https://www.fao.org/publications/collections/default/list/29477)

Group assignment: Prepare an analysis on Agriculture and Food Systems in your chosen country.

Review the overall assignments prepared so far and aggregate them in order to propose an economy-wide decarbonization briefing of which policy options you recommend in your chosen country, in each relevant sector among those studied in this first part of the class.

This assignment will be due by Saturday March 26th COB latest. Your Full Decarbonization Briefing shall include a one-page Executive Summary (or Issue Brief) of your main recommendations.

This full policy brief will be reviewed during Spring recess and you will receive detailed feedback by Saturday April 2nd latest.

(Spring break - no class on March 28)

Class 8 (Apr 4): Group presentations 1 + Integrating the issue of compliance from the start

Policy brief presentations and collective feedback / exchanges (2 hours).

In addition to the presentations, each group will distribute a one-pager (Issue Brief) to the class. Class discussion will include peer reviews of the presentations and one-pagers.

30 minutes will be devoted to analyzing next-generation compliance rules for environmental regulations.

Reading

[Next Generation Compliance: Environmental Regulation for the Modern Era - Environmental & Energy Law Program - Harvard Law School](#), Cynthia Giles, EPA.

Class 9 (April 11): Group presentations + Writing to Inform and Persuade

Policy brief presentations and collective feedback / exchanges (2 hours).

In addition to the presentations, each group will distribute a one-pager (Issue brief) to the class. Class discussion will include peer review of the presentations and one-pagers.

30 minutes will be devoted to a skills session on how to write an Op-Ed.

Readings (*tbc*)

Andrew Pennock, *The CQ Press Writing Guide for Public Policy*, chapters 8,11.

Group assignment:

Review the existing newspapers in the country you have been working on and identify the ones in which you could possibly write an Op Ed. Search for the relevant contacts (though do not contact them yet!).

Class 10 (Apr 18): Jobs in the transition

We will address the question of jobs related to the expected transitions, both in the Global North and the Global South.

We will discuss the environmental impact of such jobs – including the renewed quest for minerals and rare earth.

Readings

International Labor Organization – Greening with Jobs Report, 2018

ILO Regional Reports

[Mine Workers Arrested Outside NYC BlackRock Headquarters \(theintercept.com\)](#)

multi-solving for equity > WHO

[The Power of Multisolving for People and Climate | Elizabeth Sawin | TEDxSunValley - YouTube](#)

Group assignments

Using the ILO regional reports, address the expected consequences of your proposals in your country (and possibly other countries)'s job market. How can you mitigate the negative impacts and/or accelerate the positive ones? How can you accompany the workers that will be on the losing end of this transition?

Class 11 (Apr 25): Beyond the green growth fantasy, towards sobriety?

In this class we will delve into the destructive impacts of our consumer society on People and the Environment. We will touch upon the idea of growing towards a low-tech society, including (and even primarily) in the Global North.

Option to host a guest speaker, Philippe Bihouix/Chris McMahon on sobriety and the potential of low-technologies.

Reading

The Age of Low Tech, Towards a Technologically Sustainable Civilization, Bristol University Press, 2021

[The Limits to Growth - Club of Rome](#)

Individual assignment

Write an op-ed (in view of *actually* publishing it in the newspaper you have identified) on one aspect of your policy brief and or related human or environmental impacts of inaction.

*** Op-ed due** May 1st, 5 p.m.*

Class 12 (May 2) Addressing our own immunity to change

Option to host a guest speaker, Dr Houman Harouni, Harvard Lecturer on Education. His work—which combines psychology, philosophy, political economy, and pedagogy—addresses the potential of institutions for maintaining or changing social relations.

Reading

[Leverage cover \(donellameadows.org\)](#) Donella Meadows, The Sustainability Institute, 1999, *Leverage Points – Places to Intervene in a System*

The theory behind the practice, A brief introduction to the Adaptive Leadership Framework, Ronald Heifetz, Alexander Grashow, Marty Linsky, Harvard Business Press, 2009.

Individual assignment

Re-write your op-ed (in view of publishing it in the newspaper you have identified) based on the feedback received.

Class 13 (May 9) Last Class and review of the semester's learnings