

Lesson Plan: Environmental Economics: Cap-and-Trade

As an **Undergraduate Economics** teacher, you can use this set of computer-based tools to help you in teaching **climate mitigation environmental policies** and specifically about the **cap-and-trade** system.

This lesson plan allows you to teach about economic policy responses to climate change. This lesson plan includes resources to explain various policy approaches to mitigating climate change such as **carbon taxes** and cap-and-trade systems, their differences, and advantages. It includes an engaging classroom activity to help your students to apply economical concepts such as **price formation, market-based incentives, and transferable quotas/permits**; and learn about **carbon pricing**, carbon taxes, and the cap-and-trade environmental policy.

Thus, the use of this lesson plan allows you to integrate the teaching of a climate science topic with a core topic in **Economics**.

Use this lesson plan to help your students find answers to:

- What is a carbon pricing policy?
- What is the cap-and-trade system?
- Compare the carbon tax and the cap-and-trade policies. Which system do you support?
- The cap-and-trade policy would be effective in reducing worldwide emissions if all countries participate. Explain how this would affect the economic growth of your nation.
- Climate change is a global issue and the cap-and-trade policy would raise the cost of living especially affecting the poorer nations. How could governments address this issue through their economic policies?

About the Lesson Plan

Grade Level: Undergraduate

Discipline: Economics

Topic(s) in Discipline: Climate Mitigation Environmental Policy, Pricing, Market-based Incentives, Transferable Quotas/Permits, Cap-and-trade, Carbon Taxes, Carbon Pricing

Climate Topic: Energy, Economics, and Climate Change; Climate Mitigation and Adaptation

Location: Global

Access: Online, Offline

Language(s): English

Approximate Time Required: 60-90 min

1 Contents

1. Teaching Module (30-45 min)

A teaching module to introduce and discuss the cap-and-trade environmental policy to mitigate climate change.

This can be accessed at:

<https://core-econ.org/the-economy/book/text/20.html#205-cap-and-trade-environmental-policies>

2. Classroom/Laboratory Activity (30-45 min)

An engaging classroom activity using a mobile app or a paper-based interaction, to enable better understanding of the cap-and-trade system.

This can be accessed at:

<http://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/03/working-paper-318-Carattini-et-al.pdf>

- **Suggested questions/assignments for learning evaluation**
- What is a carbon pricing policy?
- What is the cap-and-trade system?
- Compare the carbon tax and the cap-and-trade policies. Which system do you support?

- The cap-and-trade policy would be effective in reducing worldwide emissions if all countries participate. Explain how this would affect the economic growth of your nation.
- Climate change is a global issue and the cap-and-trade policy would raise the cost of living especially affecting the poorer nations. How could governments address this issue through their economic policies?

2 Step-by-step User Guide

Here is a step-by-step guide to using this lesson plan in the classroom/laboratory. We have suggested these steps as a possible plan of action. You may customize the lesson plan according to your preferences and requirements.

1. Topic introduction and discussion

Use the teaching module, '[Cap and trade environmental policies](https://core-econ.org/the-economy/book/text/20.html#205-cap-and-trade-environmental-policies)' by the CORE Project, to introduce climate change mitigation policies such as carbon pricing. Use the module to teach about economic tools such as carbon taxes and the cap-and-trade policy. Discuss the given examples of the cap-and-trade systems used in the past to highlight its benefits. Use the exercises given in text to enable your students to assess the advantages and disadvantages of the carbon tax and the cap-and-trade systems. Note that these exercises involve some extensive readings.

This can be accessed at:

<https://core-econ.org/the-economy/book/text/20.html#205-cap-and-trade-environmental-policies>

2. Apply understanding

Use the working paper, '[For want of a chair: teaching price formation using a cap and trade game](http://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/03/working-paper-318-Carattini-et-al.pdf)' by Stefano Carattini et al., provided by the London School of Economics and Political Science, to engage your students in an in-class game to apply their understanding of economic concepts such as price formation, market-based incentives, and trading of quotas/permits. Use this game to highlight key tenets of environmental economics such as carbon pricing and carbon markets. Use this activity to enable your students to play the role of policy makers and extend their understanding of carbon pricing policies such as carbon taxes and the cap-and-trade systems. Follow the instructions as outlined in the paper to engage the students in either a mobile app (ClassEx) or paper-based interaction. A video guide to using the ClassEx software can be found in the additional resources section of this lesson plan. Finally, encourage your students to discuss their understanding of how emissions trading systems work and how they could use this to assess their nation's environmental economic policies.

This can be accessed at:

<http://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/03/working-paper-318-Carattini-et-al.pdf>

3. Questions/Assignments

Use the tools and the concepts learned so far to discuss and determine answers to the following questions:

- What is a carbon pricing policy?
- What is the cap-and-trade system?
- Compare the carbon tax and the cap-and-trade policies. Which system do you support?
- The cap-and-trade policy would be effective in reducing worldwide emissions if all countries participate. Explain how this would affect the economic growth of your nation.
- Climate change is a global issue and the cap-and-trade policy would raise the cost of living especially affecting the poorer nations. How could governments address this issue through their economic policies?

3 Learning Outcomes

The tools in this lesson plan will enable students to:

- learn about climate change mitigation through carbon pricing policies
- describe and differentiate between carbon tax and cap-and-trade systems
- explain the advantages and disadvantages of the cap-and-trade carbon policy
- discuss the importance of the cap-and-trade policy for global climate change mitigation

4 Additional Resources

If you or your students would like to explore the topic further, these additional resources will be useful.

1. Reading; 'The Economics of Global Climate Change'

Chapter 3, 'Policy Responses to Climate Change' to help your students understand the adaptation and mitigation policy responses to climate change, and the advantages of the cap-and-trade system.

This can be accessed at:

http://www.bu.edu/eci/files/2019/06/The_Economics_of_Global_Climate_Change.pdf

2. Reading; 'Stern Review Report on the Economics of Climate Change'

Chapter 14 of the Stern Report to help teach about governmental tax and trading policies for climate mitigation.

This can be accessed at:

https://webarchive.nationalarchives.gov.uk/20100407172811/http://www.hm-treasury.gov.uk/stern_review_report.htm

3. Video; 'ClassEx Guide- For Want of a Chair'

A video guide to using the ClassEx software to play the classroom cap-and-trade game 'For Want of a Chair'.

This can be accessed at:

<https://www.youtube.com/watch?v=K0RwenBSL3g&feature=youtu.be>

5 Credits/Copyrights

All the teaching tools in our collated list are owned by the corresponding creators/authors/organizations as listed on their websites. Please view the individual copyright and ownership details for each tool by following the individual links provided. We have selected and analyzed the tools that align with the overall objective of our project and have provided the corresponding links. We do not claim ownership of or responsibility/liability for any of the listed tools.

1. Teaching Module; 'Cap and trade environmental policies'

By the [CORE Project](#).

2. Classroom Activity; 'For want of a chair: teaching price formation using a cap and trade game'

Working paper by Stefano Carattini et al., provided by the [London School of Economics and Political Science](#).

3. Additional Resources

[Boston University](#)

[The National Archives](#), HM Treasury, UK.

[Engaging Environmental Economics](#)