

Syllabus

Climate Economics

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Office hours: after the class or by appointment

Course Description

Anthropogenic climate change perhaps is the biggest challenge that humanity faces today. The United Nations declared that climate change is a global emergency that goes beyond national borders. Climate change affects the national economies throughout the world and governments are challenged by its consequences. This course looks at how the policy can solve the problems around climate change impacts, and the design of mitigation and adaptation plans. All available scientific evidence shows that Central Asia is one of the most vulnerable regions to this change. The course builds on key concepts from environmental and natural resource economics but also draws from other fields in economics. The course is based on published articles and grey literature for country-relevant case studies. The course consists of three parts: 1) The impact of climate change in the world and the Central Asian region; 2) Economics tools for climate change and 3) Current and future country policies with respect to climate change. The aim of the course is to equip students with tools to assess climate policy.

Course assessment:

Class participation (10%), assignment 1 (40%), assignment 2 (50%).

Assignment 1:

Compile CO₂ emission capita, population, GDP, total energy supply Central Asian countries for the last 30 years. Calculate energy intensity of GDP for each country. Make 10 year projections. Write 1-2 page description of your findings and include 2-3 graphs.

Stata is preferred but R and Excel are ok as well. Data sources must be from a well-recognized institution(s) (e.g. World Bank or United Nations) and the source must be described in detail on a separate file or in the paper (e.g. name of the database, link, date accessed, etc.)

Assignment 2:

Before writing the essay, you should give an oral presentation of the essay topic in class. Essays should be submitted as Microsoft word files (not PDF). The file name should start with your surname, e.g. Usenov_essay.doc

Syllabus as of 8 September 2022

The topic should be related to climate economics (oil, gas, renewables, nuclear, coal, electricity, energy, social cost of carbon, mitigation, adaptation ...). You are welcome to write about any part of the world, or about topics that are not geographically specific.

The essay must be between 1500 and 2000 words long – including all elements (also bibliography and abstract). The essay should be analytical and answer some interesting question, actively interpret some data or information, weigh arguments for and against something, or make an argument. Structure: Abstract, Introduction, Main part, Conclusion

You get bonus points for including relevant graphs or diagrams which made by you. You get bonus points for an original topic or innovative analysis or arguments, as well as for clear and convincing arguments. It is important that the text is clear and easy to follow.

Reference style: Chicago Manual

Plagiarism will be detected easily and punished severely.

Class policy:

- Cell phones must be on silent mode.
- Read materials before the class.

Readings

Reading is detailed in the schedule

For review of basic microeconomics class the Perloff's Microeconomics, 7th edition is freely available: [http://dl.rasabourse.com/MIT.Mircroeconomics.Jeffrey%20M.%20Perloff%20-%20Microeconomics%20\(2014,%20Pearson\).pdf](http://dl.rasabourse.com/MIT.Mircroeconomics.Jeffrey%20M.%20Perloff%20-%20Microeconomics%20(2014,%20Pearson).pdf)

Course material is available and updated weekly:

https://www.dropbox.com/sh/1zuidnsy4wa68if/AACR7uiIDDh_Ou3oXH1y-BBea?dl=0

Syllabus as of 8 September 2022

Schedule		
Date	Topic	Reading
9-Sep-22	The science of climate change. Global Climate Change. Climate Change in Central Asia.	Chapter 1 The science of climate change in Richard S.J. Tol (2019), Climate Economics – Economic Analysis of Climate, Climate Change, and Climate Policy (2nd edition), Edward Elgar, Cheltenham. Chapter 1. Nathaniel O. Keohane and Sheila M. Olmstead, Markets and the Environment, 2nd Edition (2016).
16-Sep-22	Economics of Climate Change	Goulder, Lawrence and William A. Pizer (2008). The economics of climate change. In The New Palgrave Dictionary of Economics 2nd edition. Hampshire, UK: Palgrave Macmillan. Mooney, Chris (2017). New EPA document reveals sharply lower estimate of the cost of climate change. *Levin, Kelly and Chantal Davis (2019). What Does "Net-Zero Emissions" Mean? 6 Common Questions, Answered. https://www.wri.org/blog/2019/09/what-does-net-zero-emissions-mean-6-common-questions-answered Davenport, Coral (2020). Claims of 'Bleak' Environmental Justice Record Appear to Fell a Biden Favorite. https://www.nytimes.com/2020/12/14/climate/mary-nichols-epa.html Lazarus, Richard (2009). Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future. Cornell Law Review 94(5). Especially pp 1153-1187.

Syllabus as of 8 September 2022

<p>23-Sep-22</p>	<p>Cost-benefit analysis for climate change</p>	<p>*IPCC (2018) Global Warming of 1.5°C.. Summary for Policymakers. https://www.ipcc.ch/sr15/chapter/spm/ . **SPM Figures 1 and 2, and whatever else you need to understand them**.</p> <p>*Murphy, Robert P. (2018) "William Nordhaus versus the United Nations on Climate Change Economics." https://www.econlib.org/library/Columns/y2018/MurphyNordhaus.html</p> <p>*US EPA (2015). Regulatory Impact Analysis for the Clean Power Plan Final Rule. (**just focus on Table ES-10 and whatever else you need to understand it**).</p> <p>*Clark, D. (2011). What's the target for solving climate change? The Guardian. http://www.guardian.co.uk/environment/2011/nov/14/climate-change-targets</p> <p>IPCC (1996). Applicability of techniques of cost-benefit analysis to climate change. Chapter 5 in Climate Change 1995: Economic and Social Dimensions of Climate Change. Contribution of Working Group III to the Second Assessment of the IPCC. Cambridge: Cambridge University Press. (summary).</p> <p>Portney, P.R. (1998). Applicability of cost-benefit analysis to climate change: In Nordhaus, ed., Economics and Policy Issues in Climate Change. Washington: RFF. pp. 111-127. (particularly relevant 117-121)</p> <p>Harvey, Chelsea. (2017). Scientists have a new way to calculate what global warming costs. Trump's team isn't going to like it. Washington Post. https://www.washingtonpost.com/news/energy-environment/wp/2017/01/12/scientists-have-a-new-way-to-calculate-what-global-warming-costs-trumps-team-isnt-going-to-like-it/?utm_term=.6ddacf02136d</p> <p>Stern, Nicholas (2013). The Structure of Economic Modeling of the Potential Impacts of Climate Change: Grafting Gross Underestimation of Risk onto Already Narrow Science Models. Journal of Economic Literature 51(3).</p> <p>Shogren, J.F. and Michael Toman (2001). How much climate change is too much? An economics perspective. Chapter 4 in Climate Change Economics and Policy: An RFF Anthology.</p>
<p>30-Sep-22</p>	<p>The social cost of carbon</p>	<ol style="list-style-type: none"> 1. Metcalf, Gilbert E. and James H. Stock (2017). "Integrated Assessment Models and the Social Cost of Carbon: A Review and Assessment of U.S. Experience." Review of Environmental Economics and Policy 11(1): 80-99. 2. Plumer, Brad. "Trump Put a Low Cost on Carbon Emissions. Here's Why It Matters." New York Times, August 23rd, 2018.

Syllabus as of 8 September 2022

7-Oct-22	Policy instruments for greenhouse gas emission reduction	<p>1. KO: Chapter 8, pp. 143-162.</p> <p>2. Harvey, Fiona. "China Aims to Drastically Cut Greenhouse Gas Emissions Through Trading Scheme." <i>The Guardian</i>, December 19th, 2017</p> <p>Parry, I.W.H. and W.A. Pizer (2007). <i>Emissions Trading versus CO2 Taxes versus Standards. Assessing U.S. Climate Policy Options</i>. Washington: RFF.</p> <p>Ellerman, A.D. and Paul Joskow (2008). <i>The European Union's Emissions Trading System in perspective</i>. Washington: Pew Center. pp 1-11 required; skim other sections.</p>
14-Oct-22	Policy instruments for greenhouse gas emission reduction	<p>1. KO: Chapter 9, pp. 168-184.</p> <p>2. Rabe, Barry G. <i>Can We Price Carbon?</i> Cambridge: MIT Press, 2018.</p> <p>3. Climate Justice Alliance and Indigenous Environmental Network. "Carbon Pricing: A Critical Perspective for Community Resistance." Volume 1, 2017.</p> <p>4. Gillingham, Kenneth and James H. Stock (2018). "The Cost of Reducing Greenhouse Gas Emissions." <i>Journal of Economic Perspectives</i> 32(4): 53-72.</p>
21-Oct-22	Presentations of essay topics	
28-Oct-22	Deadline Submission of Assignment 1 via emails. No classes	
4-Nov-22	Climate and development	<p>Chapter 7 in R. Tol</p> <p>Chapter 11 in KO</p>
11-Nov-22	Optimal climate policy	<p>Chapter 9 in R. Tol</p> <p>Chapter 12 in KO</p>
18-Nov-22	International Climate Policy	<p>Chapter 13 in R. Tol</p> <p>*Green (2015). Wondering what's different about the Paris climate change negotiations? Here's what you need to know. https://www.washingtonpost.com/news/monkey-cage/wp/2015/12/01/wondering-whats-different-about-the-paris-climate-change-negotiations-heres-what-you-need-to-know</p> <p>*Victor (2015). <i>Why Paris Worked: A Different Approach to Climate Diplomacy</i>. https://e360.yale.edu/features/why_paris_worked_a_different_approach_to_climate_diplomacy</p>
25-Nov-22	Central Asia Climate Policies	

Syllabus as of 8 September 2022

2-Dec-22		
9-Dec-22	Submission of essays	
16-Dec-22	Exam	

