

**SYLLABUS – Fall 2021**  
**ECON 200: Climate Economics**  
Class Location: TBA  
Time: Tue. and Thurs.: 8-9:25am CT

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<b>Instructor</b>	:	Dr. Douglas Mugabe
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<b>Office Hours</b>	:	M: 4-5pm; T: 11:30-12:30pm; Th: 12-1pm; or by appointment:

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**Pre-requisite:** Principles of Economics

Suggested prior course work: Environmental Economics or equivalent course work

**Course Overview:**

Climate change is one of the greatest environmental challenges, humanity has ever faced. It is indeed a global collective action problem with high social costs, widespread unpredictable and inequitably distributed. Understanding climate change using economic tools is valuable because economics provides a framework to understand incentives for human behavior; measures costs and benefits and is a simple language to many. This course analyzes the problem of climate change from the perspective of economics. We will use economic tools to clarify the benefits and costs of climate change, the challenges of climate mitigation and the theoretical and empirical impacts of the current climate policies. The course will also explore the economic characteristics of the climate change problem, assesses national and international policy design and implementation issues, and surveys the economic tools necessary to evaluate climate change policies.

**Course outcomes**

Students will: (1) Demonstrate an understanding of climate change and the associated costs and benefits to the environment and economy in general; (2) Develop and increase the comprehension of economic aspects of climate change; (3) Apply tools of economic analysis to climate policy.

**Learning outcomes**

Through the activities listed below, students will:

- i. Become knowledge experts in the area of climate economics and policy
- ii. Develop a versatile economic intuition, for use in any environmental professional setting
- iii. Become more comfortable with quantitative thinking and analysis
- iv. Improve their ability to communicate, translate, and wield rhetoric in the highly divisive scientific debate about how to respond to the changing climate

## Recommended Text

1. Nicholas Stern (2006). The Economics of Climate Change: The Stern Review. (Cambridge University Press 2006, 692 pages). <https://www.lse.ac.uk/granthaminstitute/publication/the-economics-of-climate-change-the-stern-review/>
2. Tol, R. S. J. (2019). Climate Economics: Economic Analysis of Climate, Climate Change and Climate Policy. United Kingdom: Edward Elgar Publishing.
3. Keohane, M. N. O., & Olmstead, S. M. (2016). Markets and the Environment. Island Press.  
For review of economic concepts
4. Greenlaw, Steven, et al. (2020). Principles of Economics. OpenStax. <https://openstax.org/details/books/principles-economics-2e>.

## Classes activities

- i. Lectures but prioritize student participation throughout.
- ii. Course assignments
  - a. Homework assignments – problem sets
  - b. Group projects – environmental program evaluation
  - c. Individual and group presentations
  - d. Policy analyses paper
  - e. Class discussions
  - f. Economic games
  - g. Class participation
  - h. Exams (midterm and final)

## **Topics to be covered include:**

Week 1 & 2: Introduction and Review of foundational economic concepts

Week 3: Externalities and Public goods

Week 4 & 5: The impacts of Climate change

Week 6: The "social cost of carbon"

Week 7: International climate negotiation;

Week 8 & 9: General Policy problem and the performance of different policy instruments

- a. Policies in theory (carbon pricing; market-based and prescriptive policy solutions)
- b. Policies in practice (cost effectiveness; economic efficiency; distributional equity; political economy; trade)

Week 10, 11, 12 & 13: Greenhouse gas emissions (major sources → electric power and transportation and energy efficiency)

- c. Electricity

- i. Power plants, renewables, portfolio auction, climate policy and energy efficiency
  - d. Transportation
    - i. Fuel economy, electrification, ridesharing and automation etc.
    - ii.

Week 14 & 15: Revision and Final Exam

### Required Readings

Simon Dietz, Chris Hope, Nicholas Stern and Dimitri Zenghelis (2007). Reflections on the Stern Review (1): A robust case for strong action to reduce the risks of climate change. *World Economics*, volume 8, number 1, pages 121 – 168.

Lorraine Hamid, Nicholas Stern and Chris Taylor (2007). Reflections on the Stern Review (2): a growing international opportunity to move strongly on climate change. *World Economics*, volume 8, number 1, pages 169 – 186.

Simon Dietz, Dennis Anderson, Nicholas Stern, Chris Taylor and Dimitri Zenghelis (2007). Right for the right reasons: a final rejoinder on the Stern Review. *World Economics*, volume 8, number 2, pages 229 – 258.

Simon Dietz, Chris Hope and Nicola Patmore (2007). Some economics of ‘dangerous’ climate change: reflections on the Stern Review. *Global Environmental Change*, volume 17, issues 3–4, pages 311–325.

Simon Dietz and Nicholas Stern (2008). Why economic analysis supports strong action on climate change: a response to the Stern Review’s critics. *Review of Environmental Economics and Policy*, volume 2, issue 1, pages 94-113.

Nicholas Stern (2008). The Economics of Climate Change. *American Economic Review*, volume 98, number 2, pages 1–37.

Simon Dietz and Nicholas Stern (2009). Note—on the timing of greenhouse gas emissions reductions: a final rejoinder to the symposium on “The Economics of Climate Change: The Stern Review and its Critics”. *Review of Environmental Economics and Policy*, volume 3, issue 1, pages 138-140.

Wilfred Beckerman and Cameron Hepburn (2007). Ethics of the discount rate in the Stern Review on the Economics of Climate Change. *World Economics*, volume 8, number 1, pages 187 – 210.

Dennis Anderson (2007). The Stern Review and the costs of climate change mitigation: a response to the ‘Dual Critique’ and the misrepresentations of Tol and Yohe. *World Economics*, volume 8, number 1, pages 211 – 219.

John F. Mitchell, Julia Slingo, David S. Lee, Jason A. Lowe and Vicky Pope (2007). Response to Carter et al. *World Economics*, volume 8, number 1, pages 221 – 228.

Nigel Arnell, Rachel Warren and Robert Nicholls (2007). Response to ‘The Stern Review: A Dual Critique’. *World Economics*, volume 8, number 1, pages 229 – 231.

Andrew Glikson (2007). A response to 'The Stern Review: A Dual Critique'. *World Economics*, volume 8, number 1, pages 233 – 238.

Ian Simmonds and Will Steffen (2007). Response to 'The Stern Review: A Dual Critique—Part I: The Science'. *World Economics*, volume 8, number 2, pages 133 – 141.

Weitzman, Martin L. (2007). A review of The Stern Review on the Economics of Climate Change. *Journal of Economic Literature*, volume 45, number 3, pages 703-724.

Geoffrey Heal (2009). The economics of climate change: a post-Stern perspective. *Climatic Change*, volume 96, number 3, pages 275-297.